A.I.A. File Number 16-D
Bulletin No. 109

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ROLLING DOORS

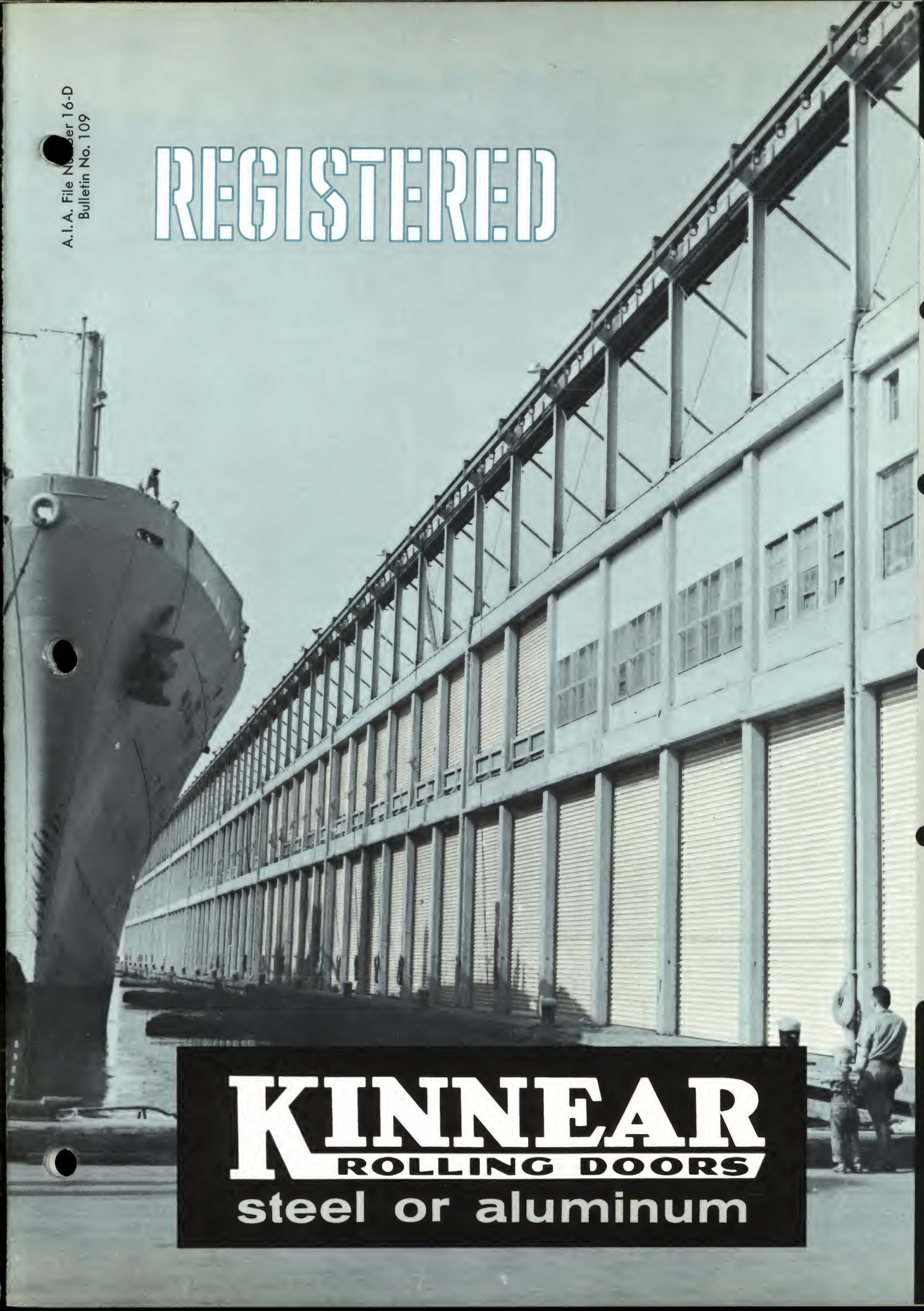
FIRE DOORS

ROLLING COUNTER SHUTTERS

ROLLING GRILLES

ROL-TOP DOORS

REGISTERED



KINNEAR
ROLLING DOORS
steel or aluminum

KINNEAR ROLLING DOORS COMPLETE DOOR SERVICE

Since Kinnear originated the interlocking slat curtain better than 60 years ago, the name Kinnear has become synonymous for Rolling Doors the world over. By specializing exclusively to the manufacture of doors, Kinnear has achieved the enviable reputation for manufacturing facilities, specialized experience and leadership in door design. To specify Kinnear Doors means more than the selection of a superior product; it is the assurance of extra door services. The Kinnear "Complete Door Service" policy, whereby designing skill, competent workmanship, and the best of materials, makes Kinnear the keynote of quality.

To make this specialized Kinnear Door Service most conveniently available, regardless of your location, Kinnear and its subsidiaries operate plants in Columbus, Ohio and San Francisco, Calif. and has Offices and Authorized Agents located in all principal cities.

specialized door engineering and installation

Kinnear trained installation crews not only insure maximum economy of installation – they also assure trouble-free operation, and long service life with a minimum of maintenance cost for every Kinnear door.

Architects and engineers are invited to contact Kinnear door representatives or the home office during the planning stages of a project, for the solution of special door applications, by Kinnear specialized door representatives.

9

MAJOR REQUIREMENTS

1. "REGISTERED" life extension

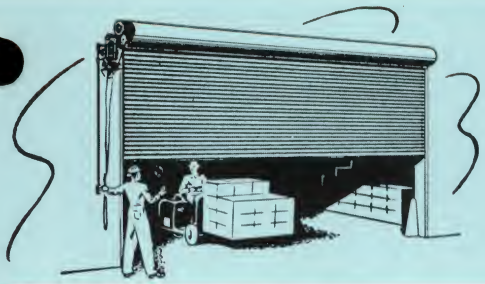
Kinnear "Registered" service is a form of "life extension" that protects your door investment far into the future.

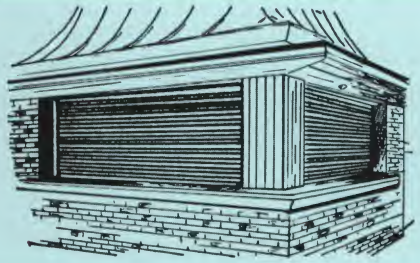
Complete details and drawings of every order for Kinnear Rolling Doors are kept in permanent, fireproof vaults – an added protective service that has proved extremely valuable to many users, throughout the years.

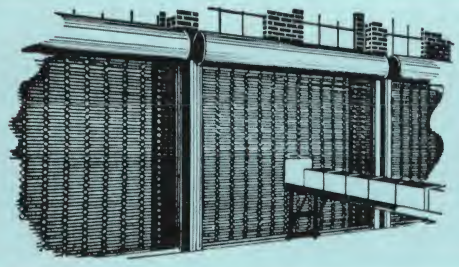
In case of accidental damage or other mishap, new parts for Kinnear Doors installed sixty years ago can be replaced quickly today, because of this exclusive Kinnear service. Parts are frequently supplied for Kinnear Rolling Doors in continuous daily use for 40, 50 or 60 years.

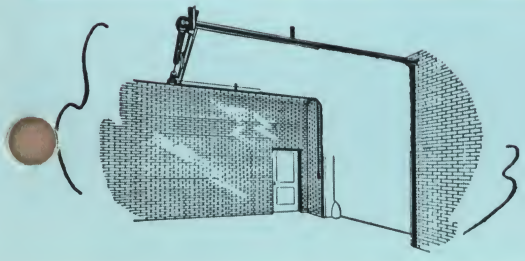
2. quick, easy operation
3. space saving
4. greater durability
5. fire protection
6. maximum safety
7. general protection
8. neat appearance
9. economical installation

Index to Kinnear door types

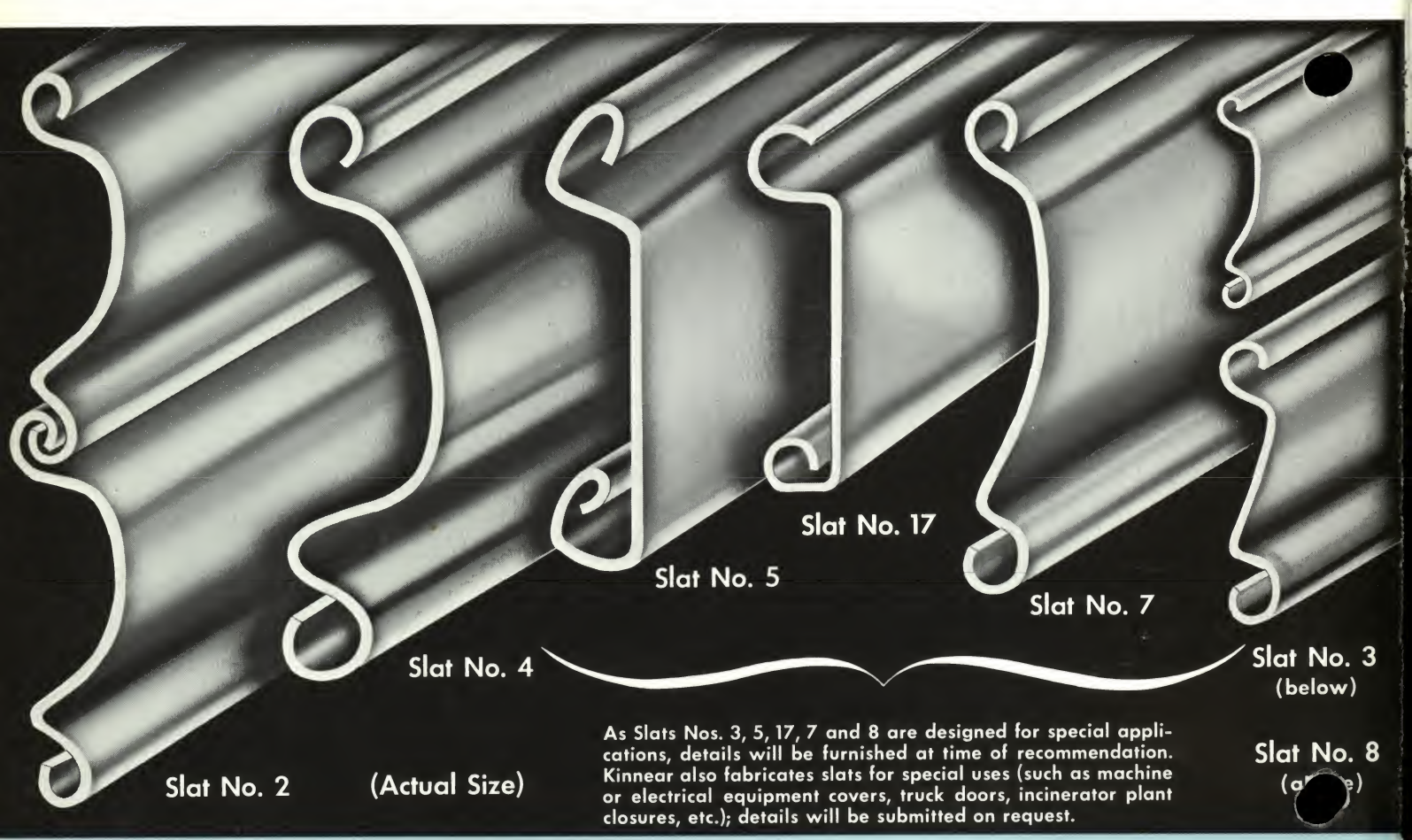








KINNEAR ROLLING DOORS — INTERLOCKING SLAT CURTAIN



As Slats Nos. 3, 5, 17, 7 and 8 are designed for special applications, details will be furnished at time of recommendation. Kinnear also fabricates slats for special uses (such as machine or electrical equipment covers, truck doors, incinerator plant closures, etc.); details will be submitted on request.

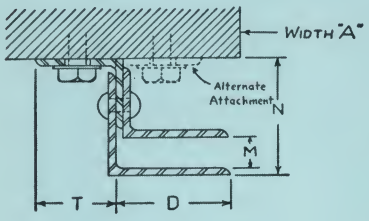
zinc-coated dual-protected steel slats

To just specify "galvanizing" may mean any type or amount, as low as 2/10 to 6/10 of an ounce per sq. ft. (commercial coating). Kinnear high grade zinc base coating applied by the hot dip process fuses into the pores of the steel (1¼ ounces per sq. ft. class of flat metal in accordance with ASTM Standards—more than twice as much as some commercial coatings). Kinnear heavy zinc coating is prepared for painting by the application of a phosphate coating (Kinnear Paint Bond) which acts as a bond between the zinc and paint.

Painting can be done at once, using your own paint specification and colors. Paints and enamels deteriorate, chip and wear off; therefore the heavy base zinc coating fused into the steel is vital to long life and resistance to corrosion.

clearance for curtain guide

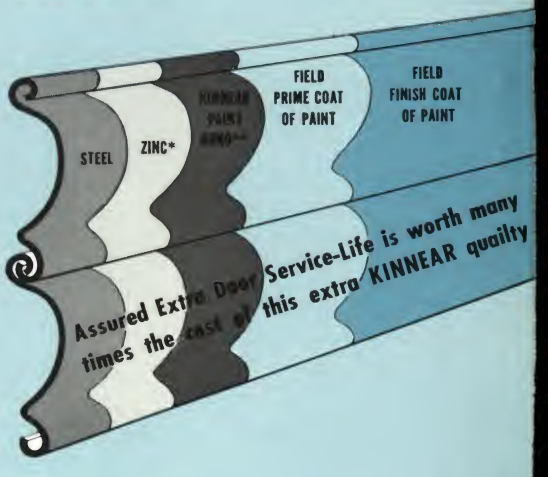
Table below gives guide clearance and slats required for doors of various widths.



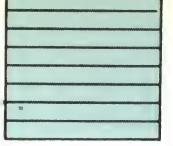
	Width A	D	M	N	T
Slat No. 2	Thru 11′	2 5/16″	7/8″	3 5/16″	2″
	Over 11′ thru 13′ 9″	2 13/16″	7/8″	3 5/16″	2″
Slat No. 4	Over 13′ 9″ thru 16′ 9″	2 13/16″	1 1/8″	4 1/16″	3″
	Over 16′ 9″ thru 20′ 4″	3 1/4″	1 1/8″	4 7/8″	3″
	Over 20′ 4″ to 24′ 4″	3 3/4″	1 1/8″	4 7/8″	3″
	24′ 4″ thru 32′ 4″	3 3/4″	1 5/8″	5 1/2″	3″
	Over 32′ 4″ thru 40′	4 5/8″	1 5/8″	6″	4″

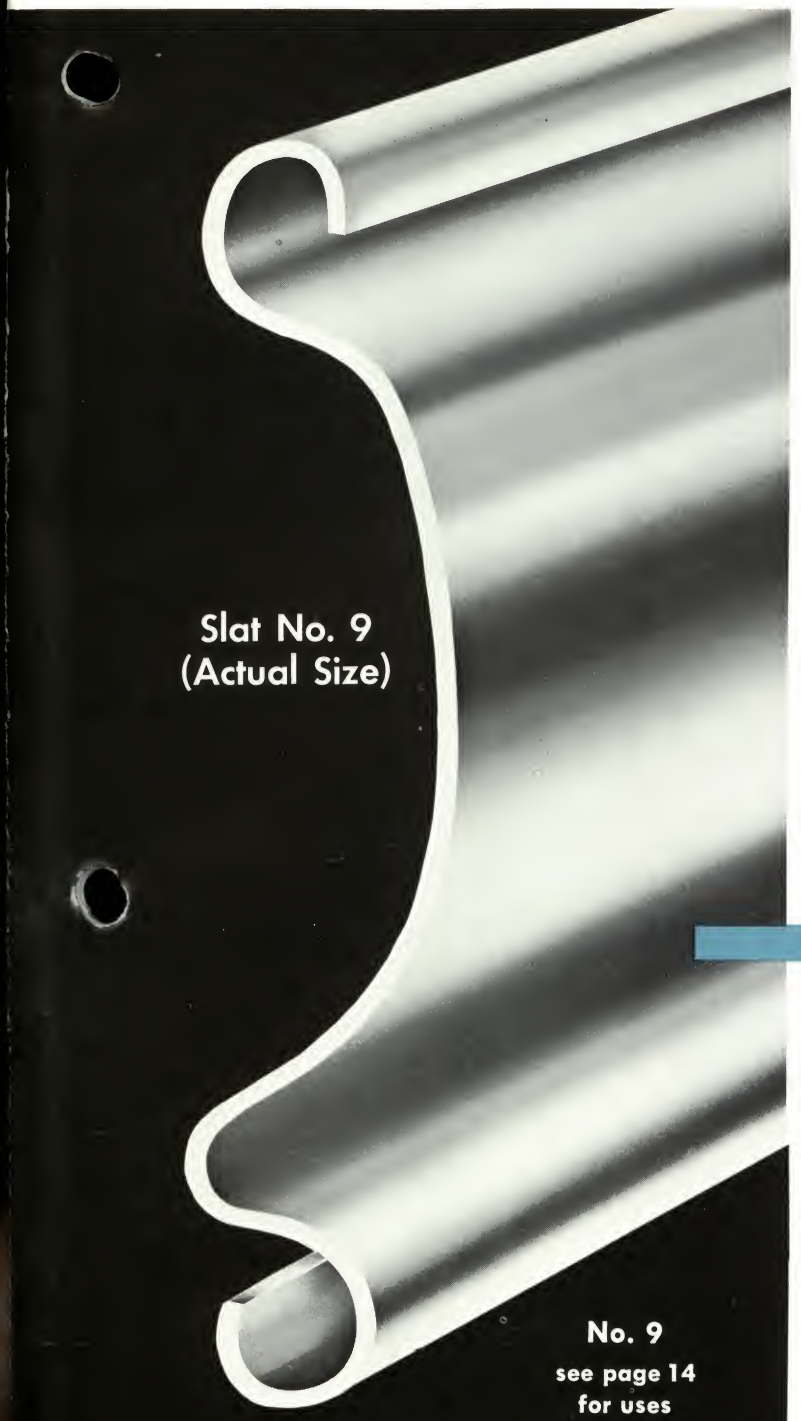
Note: Slat No. 2 is usually used on doors of sizes listed above the heavy line (13′ 9″ and less in width) in the tables; Slat No. 4 on sizes below heavy line.

Specify KINNEAR Dual-Protected Steel Slats



There is no better protection for rolling doors on the market than Kinnear Hot Dip 1¼ oz. per sq. ft. class of metal zinc coating, plus Kinnear Paint Bond (phosphate coating) for paint adhesion, plus field coats of paint.





endlocks

Alternate interlocking slats, forming the curtain of a rolling door have malleable iron endlocks dimple-riveted to the ends. When required may be on every slat, at extra cost. They retain slats in place, maintaining curtain alignment, and protect the ends of the slats from rubbing in the guides. See page 19 for windlocks.

curtain features

- **water shedding assembly**—The section is made with reverse curves, thus providing a natural water shed.
- **reversibility**—The position illustrated sheds water against the convex surface, but if the sections are reversed, top for bottom, the assembly will then shed water against the concave side.
- **resistance to horizontal forces**—The curved sections distribute metal on both sides of the vertical or neutral axis so as to provide the same horizontal resistance to forces from either side.
- **resiliency**—Slats open up and flatten very slightly when resisting horizontal forces, which allows additional resiliency and provides a strong but flexible curtain with slats that are difficult to cripple.
- **free-acting joints**—The interlocking joints are designed to permit easy articulation in coiling.
- **compressibility**—A clearance in the interlocking bead allows a slight telescoping in the vertical length of the curtain, affording a cushion effect when the door closes. Thus the bottom bar can adjust to a slight rectilinear slope in the sill from jamb to jamb.
- **attractive appearance**—Shadows and highlights caused by the convex and concave surfaces present a pleasing appearance and contribute to the architectural design of the building.

physical characteristics of slats

No. 2: Made in 22, 20 and 18 U.S. gauge open hearth steel. Depth of crown ½ in., 1¾ in. on centers.

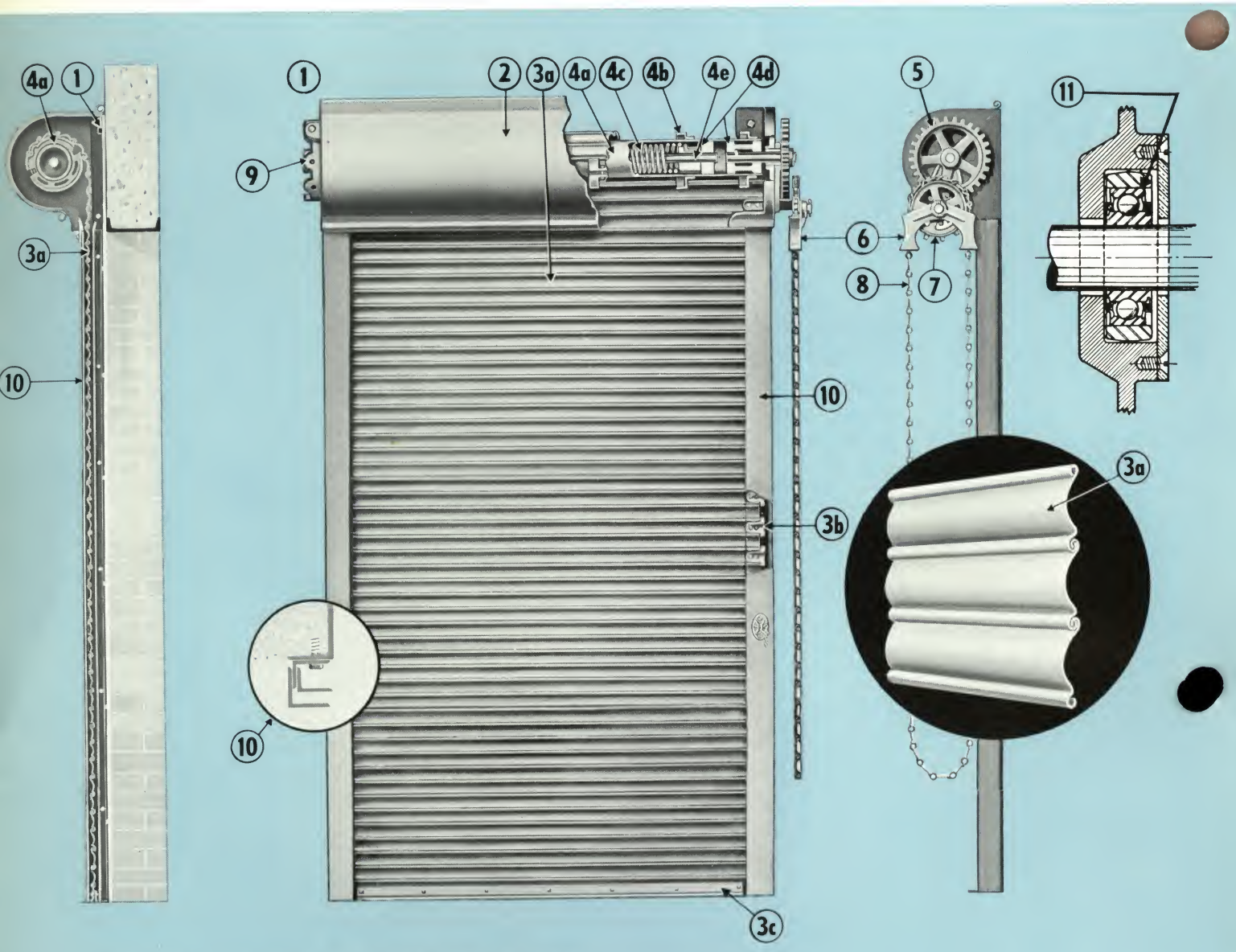
No. 4: For extremely wide doors. 20, 18 and 16 U.S. gauge. Depth of crown ⅞ in., 2⅝ in. on centers.

No. 9 ("Goliath" slat): The Kinnear "Goliath" Slat (No. 9) has been especially designed to provide an exceptionally strong rolling curtain to accommodate extremely large openings or smaller openings requiring an exceptionally strong barricade. As can be seen by the above full size illustration, and as its name implies, it's a giant in proportions and makes possible the most rugged rolling door ever offered. Practically an impenetrable barrier! It's roll formed of either steel (14 or 16 U.S. Gauge) or aluminum (12 or 10 B & S Gauge) and embodies the same design features that have earned for Kinnear Interlocking Slat Type of Rolling Door world acclaim.

for extra weathertightness

Nos. 5 and 17 slats for extra weathertightness: Where a rolling door of maximum weathertightness is desired one of Kinnear's flat slats (No. 5 or No. 17) has exceptional merit. They form a good-looking curtain that presents a close-fitting, flat-surface exterior, giving exceptional water-shedding qualities and permitting the use of tighter weather-stripping provisions in the guides (see page 18). Their design results in a curtain strength and coiling action equal to the curved type slat of comparable gauge.

CONSTRUCTION FEATURES



specify these valuable features

1. brackets—the gray iron castings which support the curtain coil and spring barrel at either end. Proportioned with large factor of safety and cast in special molds to give uniformity. Made of high-test gray iron of uniform texture. All surfaces are smooth and even. Bracket mouth and stops are at an established distance between center and back of bracket, thus providing a throat which permits smooth operation without friction and eliminates the excessive drag of curtain over the stops. Bearings of large proportions are provided for barrel spindles.

2. hood—the hot galvanized sheet steel cover which fits contour of brackets and encloses the curtain coil. Neatly formed and suitably reinforced with beads or flanges to prevent deflection.

3. curtain is composed of:

a. interlocking galvanized (or aluminum) slats – (See pages 4 and 5 for profile of commonly used sizes and advantages of their unique design.)

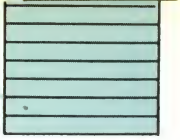
b. endlocks – Dimple-riveted to ends of slats. These are called "continuous" when they reinforce both ends of all slats; "alternate" when on every other slat. They are made of malleable iron and retain slats in place. Also protect slats against rubbing in the guides and maintain the curtain in alignment. (For illustrations see page 5.)

c. bottom bar – Usually formed of two angles and a half slat to reinforce lower edge of curtain against wind pressure. Angles of equal weight balance and hang freely on the curtain to eliminate friction and possible binding in the guides. Provides contact for the curtain against the sill when the door is closed and against both front and back stops on the bracket when the door is open.

4. counterbalance barrel is composed of:

a. spring barrel – or pipe which:

(1) encases the counterbalance mechanism
(2) serves as the load-carrying beam
(3) provides an axis around which curtain coils
(4) provides the same anchorage simultaneously for the revolving ends of all counterbalance springs



It is of heavy steel of sufficient diameter and thickness to avoid deflection in excess of .03 inches per lineal foot of barrel.

b. rings – Of malleable iron of involute shape and split design are used where door size requires. They are designed to coil the curtain with a uniformly increasing diameter. Size provides an initial diameter sufficient to insure uniform and constant counterbalance for all points of the door travel.

c. counterbalance springs – One or more depending on size of door. Oil-tempered helical springs wound from specially heat-treated steel provide a permanent means of counterbalance. Each spring is heat-treated after winding and tested for each job. The fixed ends of all springs for each door are anchored to the same tension rod, which enables all springs to be adjusted uniformly and simultaneously.

d. barrel plugs – For connecting the ends of the springs to pipe and tension rod and of special design for eliminating the usual excessive strain at the spring ends. Of heavy cast iron with end plug machined to fit ends of the barrel. (See Adjusting Wheel Assembly diagram at right.)

e. shafting – Of cold-rolled polished steel to minimize friction in all bearings. The tension rod of ample size to hold the fixed ends of all springs and thus carry the entire torsional load of the spring counterbalance.

5. reduction gearing—Suitable reduction gearing cast with teeth machine-molded from machine-finished patterns. These may be spur gears as shown, bevel gears for thru-wall operation, or worm gears used with power operators. Designed with a high factor of safety and a reduction ratio individually suited to the door operated.

6. chain guard—Sprocket wheel provided with a guard, especially designed to guide the hand chain and prevent it from jumping the sprocket teeth.

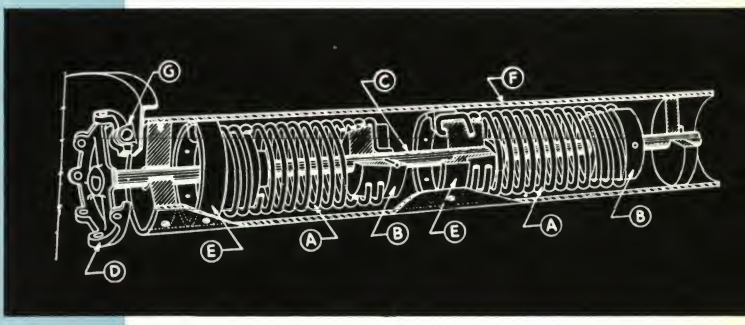
7. sprocket—For hand chain and may be cast with or without small spur pinion.

8. operating chain—Of design and strength to prevent stretching and to provide a comfortable hand grip. Heavily galvanized.

9. adjusting wheel—Mounted outside of bracket and on end of tension rod, used to apply and hold tension on every one of the counterbalance springs simultaneously and in same proportion. Note detailed description at right.

10. guides—Fabricated from structural steel angles. Especially adaptable for doors exposed to heavy wind pressure. Designed with groove depths varying from 2 to 8 in., depending upon the width of the door, and packed out from the face of the wall in order to accommodate the specially designed throat of the bracket.

11. high quality bearings—To facilitate long life and smooth, easy operation, the bearings at both ends of the barrel, which support the curtain, are self-lubricating graphite bearings or grease-sealed precision ball bearings, depending upon the size of door. This is standard Kinnear equipment and typifies the extra care and quality that are incorporated in a Kinnear Door to assure maximum life and operating economies.



KINNEAR adjusting wheel and spring assembly

More than sixty years ago Kinnear adopted a unique method of counterbalance spring adjustment that assures maximum efficiency and uniform tension on the doors' counterbalance spring or springs. One end of each counterbalance spring (A) is fitted on with cast plug device (B) and attached directly to a single tension rod (C). The end of this tension rod has an adjusting wheel (D) on the exterior of the door bracket. The other end of each of the counterbalance springs is fitted with a cast plug device (E) that is anchored to the spring barrel (F). Thus for each spring one end is attached to the same spring barrel and the other end is attached to the same tension rod.

With the curtain coiled, the required initial tension can be applied by turning the adjusting wheel properly and securing it to the bracket (G). This adjusting wheel is well anchored to the bracket by a rivet pin; Kinnear does not trust a pawl attachment in this important place as the pawl may or may not drop into secure position. When the adjusting wheel is turned it turns one end of each spring in the same direction thus applying the same torque simultaneously and uniformly to all springs.

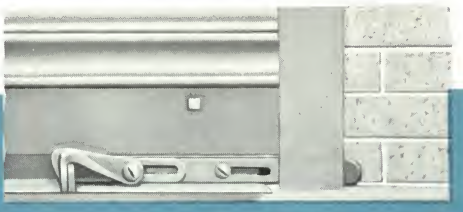
As soon as the curtain is lowered sufficiently to turn the spring barrel one complete revolution, the ends of all springs being attached to the barrel will operate and make one complete turn. Consequently, when the curtain is completely uncoiled, the barrel has turned the ends of all springs a corresponding amount and stressed all springs in identical proportion.

With this arrangement the total tension of the counterbalance can be increased or decreased, easily and without any disassembly, whenever the need requires. It also insures uniform and most effective counterbalance action of the springs and maximum service life of the doors' complete counterbalance mechanism. The above is true for any number of springs used in the barrel – SIMULTANEOUS and UNIFORM SPRING ADJUSTMENT FOR ALL!

KINNEAR ROLLING DOORS — TYPES OF OPERATION

electrical operation

manual operation



KINNEAR SLIDE BOLT

Above top: Locking of the manually push-up operated doors is accomplished by padlocking the slide bolt, which contacts a stop in the guide, to the clip welded on the bottom plate of the door. This can be arranged for locking on either, or both sides of the door.

LIFTING SLOT HANDLE

Above: Showing the convenient lifting handle provided on the bottom plate of all manually operated push-up doors.

advantages of electrical operation

- saves time
- saves labor
- pays for itself
- increases production
- saves building heat
- allows remote control

controls

Standard magnetic switch. Standard station three push buttons labeled "open", "close", "stop". Limit switch automatically stops motor, sets brake. Special switches and key-operated push buttons, where required, can be furnished as an extra. (See pages 15 to 17.)

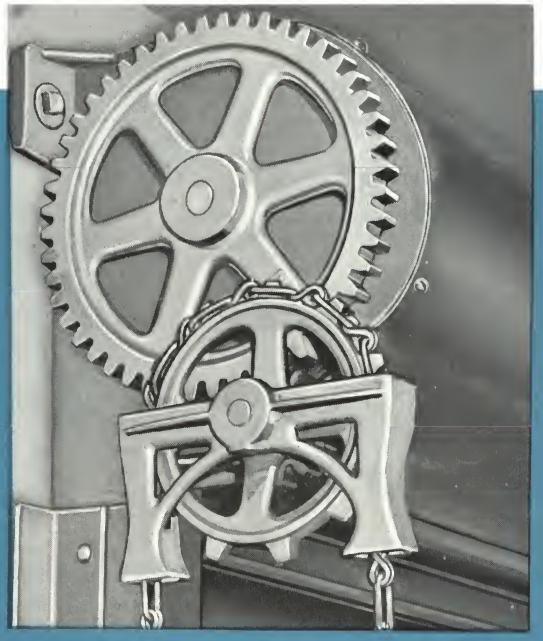
Kinnear power equipment can be used to convert existing manually operated doors at moderate expense.

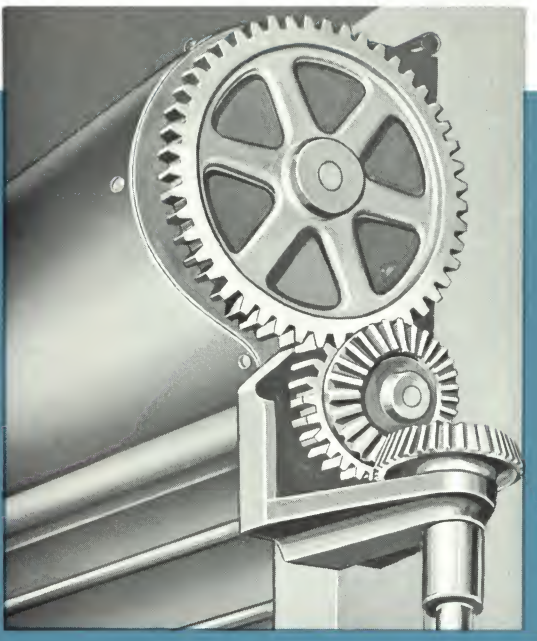
For small size doors (with a maximum dimension of 12′-4″ or a maximum area of 100 sq. ft.), mounted on the face of the wall or in reveals in the jambs, convenient lifting handles are provided on the bottom plate. Counterbalance minimizes raising exertion. Usually mechanical operation is recommended for doors over 80 sq. ft. in area.

emergency manual operation

Pulling down on an auxiliary release chain engages the emergency chain operator and also cuts out electrical operation and automatically releases the brake. The door is then opened or closed manually by hand chain control. The power unit is returned to normal electrical operation by simply reversing operation on the release chain. This method is both simple and positive. It eliminates inconvenience in case of power failure and is also operative even in the event of motor removal.

mechanical operation





chain hoist

For large doors, standard operation by hand chain, sprocket and reduction gear is arranged for operation from door side, or as an extra from opposite side (Thru-the-wall). Estimated maximum pull required is 35 lbs. To lock door the operating chain can be padlocked to a keeper on the jamb.

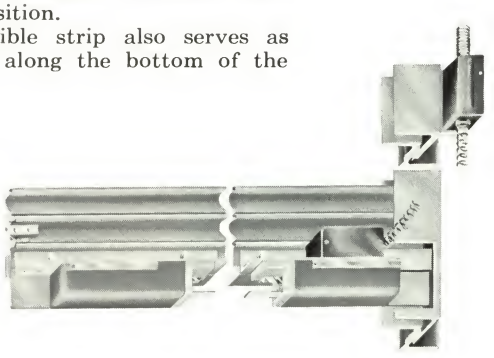
crank

When preferred, at extra cost, doors can be operated by a hand crank, shafting and reduction gear on door side of wall, both sides of wall, or only on side opposite door. Estimated maximum exertion required on crank is 20 lbs. Detachable crank prevents unauthorized operation. Also operating shaft can be padlocked to the crank box to prevent operation.

combination safety device and weatherseal for power operated doors

The Kinnear Safety Device is an electrical device working in conjunction with the operator control. A compressible strip is mounted along the bottom of the rolling door curtain. In the event the curtain in its downward travel comes in contact with any object in the opening, this strip compresses, activating the electrical control that automatically stops and reverses the curtain travel, causing it to return to the fully raised position.

The compressible strip also serves as a weatherseal along the bottom of the door.



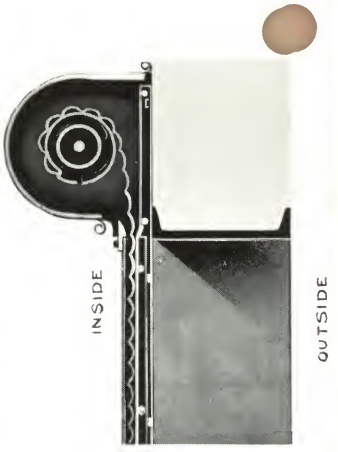
specification

Curtain bottom bar shall be fitted with a combination electrically actuated safety device and weatherseal as supplied by The Kinnear Manufacturing Company, Columbus, Ohio. It shall consist of a chromate zinc chloride impregnated wood strip to which an assembly of foam rubber strips, forming a hollow channel, is applied. Electrical contact strips to be enclosed on the opposing surface in this channel shall be aluminum foil laminated to polyester film and in turn laminated to asbestos cloth insulation. Electrical connections to be made in series with wires plastic-sealed to contacts. Complete assembly to be encased in a weathersealed vinyl-coated nylon jacket. Lead cable from device to jamb junction box to be self-coiling type.

KINNEAR ROLLING DOORS DOOR TYPES

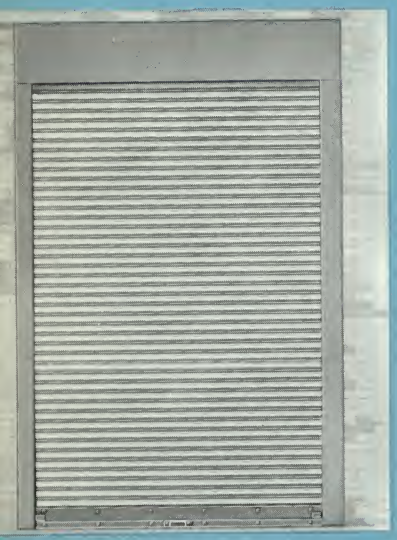
Model FM-10 "PUSH-UP" OPERATION (*face mounting*)

- **Manually operated by lift handle in bottom rail. Locked by slide bolt.**
- **Curtain hot-dip galvanized and given Kinnear Paint-Bond treatment.**
- **Guide channels and mechanism mounted on face of wall.**
- **Provides clear unobstructed opening – full width and height.**
- **Easy, accessible adjustment of counterbalance spring.**



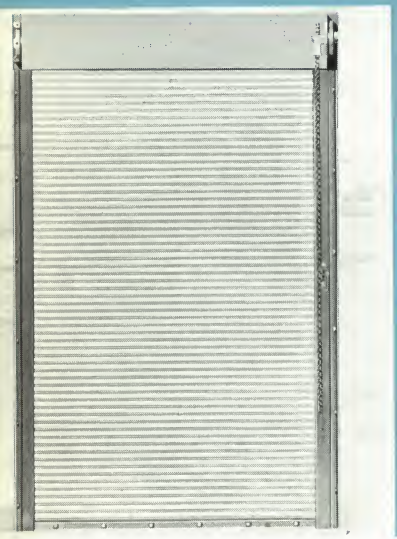
For doorways or window openings. Counterbalance mechanism and curtain coil, enclosed in hood, is mounted on face-of-wall above lintel. Endlocks on curtain retain interlocking slats in place and maintain curtain alignment. Curtain is fitted with lifting handles on bottom rail. Guide channels are on wall face, unobstructing the clear opening width. Suitable for openings up to 12′4″ wide, or maximum of 90 sq. ft. in any type building. See pages 16 to 20 for further specifications.

Model BM-10 "PUSH-UP" OPERATION (*under lintel mounting*)

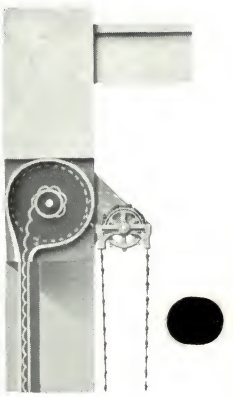


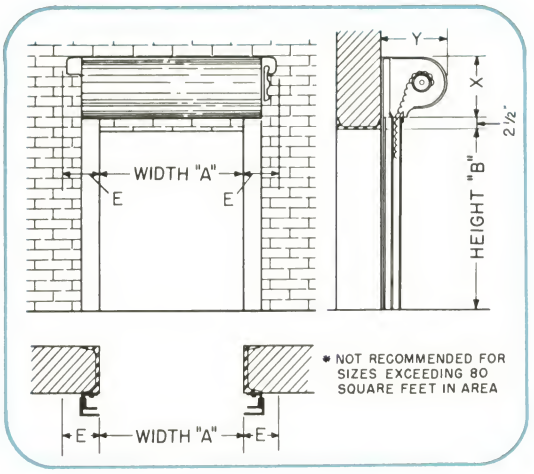
For doorways or window openings. Counterbalance mechanism and curtain coil is mounted below lintel in door opening between jambs. Guide channels are either mounted on jambs in the opening or in reveals in the jambs. Mechanism concealed when fascia plates are used. Curtain fitted with lifting handles in bottom bar. Suitable for openings up to 12′4″ wide, or 90 sq. ft. area, in any type building.

Model BH-20 CHAIN HOIST OPERATION (*under lintel mounting*)



For doorways exceeding a height practical for manual push-up operation and where headroom above lintel will not permit a face mounted door. Counterbalance and curtain coil is mounted between jambs under lintel. Guide channels are either mounted on jambs or in reveals in jambs. Hand operating chain and reduction gearing mounted at side of opening on face of wall.





Note: Dimensions on this page are for general reference only and not for construction purposes. For special requirements refer to Engineering Department.

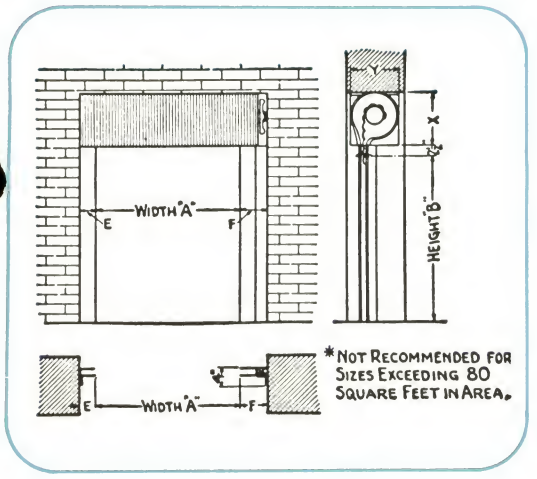
Height B*	6′			7′			8′			9′			10′			11′			12′		
Width A*	X	Y	E	X	Y	E	X	Y	E	X	Y	E	X	Y	E	X	Y	E	X	Y	E
To- 4′-0″							14	13	6										17	16	6
To- 5′-0″				14	13	6							17	16	6	17	16	6			
To- 6′-0″										16	15	6									
To- 7′-0″	13	12	6				16	15	6							19	18	6	19	18	6
To- 8′-0″													18	17	6						
To-11′-0″				16	15	6				18	17	6									
To-12′-0″	13	12	7	16	15	7	18	17	7	18	17	7									
To-13′-9″																					

Inches

Note: X dimension is bracket height. Brackets placed 2½ ″ above lintel. For door mounted outside add 1 ″ to X dimension.

*Inclusive.

Note: Where door dimensions are larger than the dimensions given within a single bracket in the above tables use the data given in the bracket for the next larger width or height.

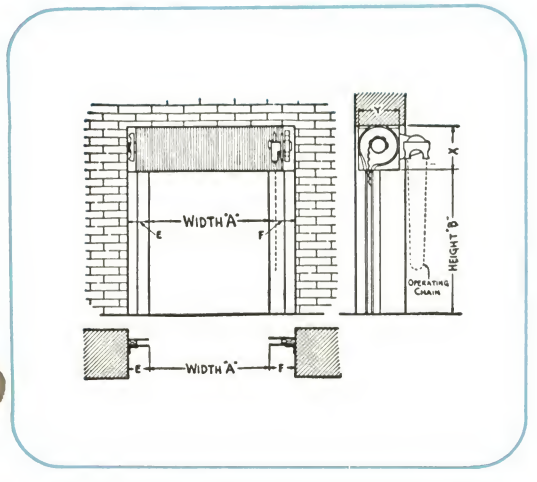


Height B*	6′				7′				8′				9′				10′				11′				12′			
Width A*	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F
To- 4′-0″									15	13	3	4													18	16	3	4
To- 5′-0″																	18	16	3	4	18	16	3	4				
To- 6′-0″	14	11	3	4	15	13	3	4					17	15	3	4									20	18	3	4
To- 7′-0″									17	14	3	4					19	17	3	4	20	18	3	4				
To- 8′-0″					15	13	3	5	17	14	3	5																
To-11′-0″	14	11	3	5	17	14	3	5	18	16	3	5	19	17	3	5	19	17	3	5	20	18	3	5	20	18	3	5
To-12′-0″	14	11	4	5	17	14	4	5	18	16	4	5	19	17	4	5	19	17	4	5	20	18	4	5	20	18	4	5

Inches

*Inclusive.

Note: Where door dimensions are larger than the dimensions given within a single bracket in the above tables use the data given in the bracket for the next larger width or height.



Height B*	To-8′-5″				9′				10′				11′				12′				13′				14′				15′				16′			
Width A*	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F
To- 7′-0″	13	10	4	5	14	11	4	5	14	11	4	5	14	12	4	5	16	13	4	5	17	14	4	5	17	14	4	5	17	14	4	5	17	15	4	5
To-11′-0″	13	10	5	6	14	11	5	6	14	11	5	6	16	12	5	6	16	13	5	6	17	14	5	6	17	14	5	6	17	14	5	6	17	15	5	6
To-12′-0″	14	11	5	6																																
To-13′-9″	14	12	5	6	16	12	5	6	16	12	5	6	16	13	5	6					17	14	6	8	17	14	6	8	17	15	6	8	18	15	6	8
To-14′-9″					16	14	5	6	18	15	5	7	19	16	5	7	19	16	5	7	19	16	5	7	19	17	5	7	19	17	5	7	20	18	5	7
To-15′-0″	16	14	5	6	17	14	5	6																									20	18	6	8
To-16′-0″									18	15	6	8	19	16	6	8	19	16	6	8	19	16	6	8	19	17	6	8	19	17	6	8				
To-18′-0″	17	14	6	8	18	15	6	8																					22	19	6	8	22	19	6	8
To-20′-0″																	20	18	6	8	22	19	6	8	22	19	6	8								
To-22′-0″	17	15	6	8									20	18	7	9	22	19	7	9	22	19	7	9	23	20	7	9								
To-23′-0″	17	15	7	9	18	15	7	9	18	15	7	9																								

Inches

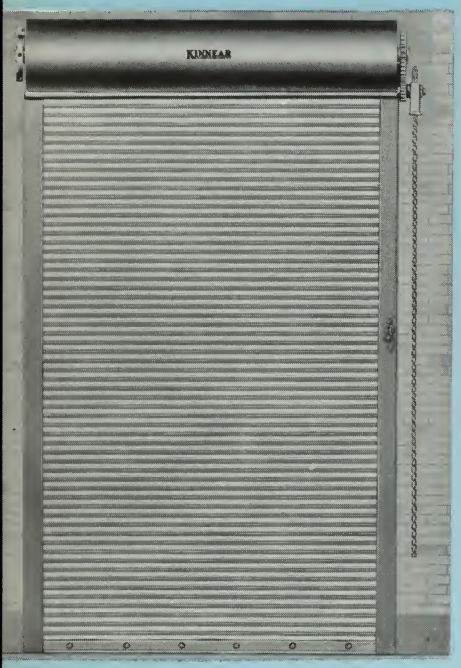
*Inclusive.

Note: Where door dimensions are larger than the dimensions given within a single bracket in the above tables use the data given in the bracket for the next larger width or height.

Note: Slat No. 2 is usually used on doors of sizes listed above the heavy line (13′ 9″ and less in width) in the above table; slat No. 4 on sizes below the heavy line.

KINNEAR ROLLING DOORS — DOOR TYPES

MODELS FH-20, FH-61



Note: Slat No. 2 is usually used on doors of sizes listed above the heavy line (13′9″ and less in width) in the tables; Slat No. 4 on sizes below the heavy line.

Height B* / Width A*	To-8′-5″ X	Y	E	F	To-9′ X	Y	E	F	To-10′ X	Y	E	F	To-11′ X	Y	E	F	To-12′ X	Y	E	F	To-13′ X	Y	E	F	To-16′ X	Y	E	F
To-11′-0″	13	13	6	8	13	13	6	8	13	13	6	8	15	15	6	8	15	15	6	8	15	15	6	8	17	16	6	8
To-12′-0″					13	14	7	8	13	14	7	8									15	15	7	8	17	16	7	8
To-13′-0″	13	14	7	8					15	15	7	8	15	15	7	8	15	15	7	8								
To-13′-9″					15	15	7	8													17	16	7	8	17	17	7	8
To-14′-9″																					19	18	7	8				
To-15′-11″													19	17	7	8	19	17	7	8								
To-17′-0″	16	15	7	8	17	16	7	8	17	16	7	8													21	19	7	8
To-19′-0″																	18	18	7	8	19	19	7	8				
To-20′-0″													18	19	7	8												
To-22′-0″	17	17	7	8	17	17	7	8	18	19	7	8					21	20	8	9	21	20	8	9	21	20	8	9
To-24′-0″	19	19	7	9	21	19	8	9	21	19	8	9	21	19	8	9					21	20	9	10	21	20	9	10

Inches

(continued at right)

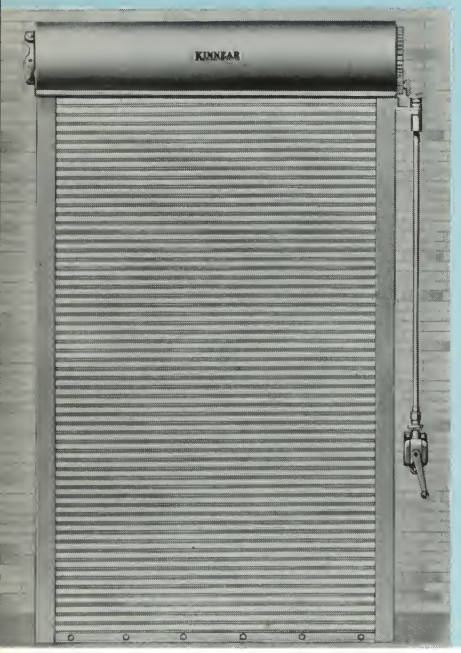
- **Curtains hot-dip galvanized and given Kinnear Paint-Bond treatment.**
- **Counterbalance mechanism and curtain coil enclosed in hood.**
- **Guide channels and mechanism mounted on face-of-wall.**
- **Provides clear unobstructed opening – full width and height.**

Chain and crank operated door types on pages 12 and 13 are designed for doorway opening heights exceeding limits for "manual push-up operation". Both FM and FC types are for face mounting above lintel.
Guide channels are on face of wall, unobstructing the clear opening width.

MODELS FH-20, FH-61 CHAIN HOIST OPERATION *(face mounting)* operated by hand chain

Model FH-20 has sprocket and reduction gearing, for hand chain operation, located at end of curtain barrel. Locked by padlocking hand chains in wall keeper. See page 19 for further specifications.
FH-61 has sprocket and hand operating chain on inside wall when door is mounted on outside wall or vice versa.

MODEL FC-20



Note: Dimensions are for general reference only and not for construction purposes. For special requirements refer to Engineering Dept.

MODEL FC-20 CRANK OPERATION *(face mounting)* operated by hand crank

Operated by hand crank, with shafting and reduction gearing. Locked by crank removal or locking shaft wheel.

Hand crank, with shafting and reduction gearing. Crank detaches. Can be arranged to operate door from either side (or both sides) of wall. See page 19 for further specifications.

Height B* / Width A*	To-8′-5″ X	Y	E	F	9′ X	Y	E	F	10′ X	Y	E	F	11′ X	Y	E	F	12′ X	Y	E	F	13′ X	Y	E	F	14′ X	Y	E	F	15′ X	Y	E	F	16′ X	Y	E	F
To- 9′-0″	12	11	6	11	13	12	6	11	13	12	6	11	14	12	6	11	15	14	6	11	16	14	6	11	16	14	6	11	16	15	6	11	16	15	6	11
To-11′-0″													14	13	6	11																				
To-12′-0″	13	12	7	12	13	12	7	12	13	13	7	12	14	13	7	12	15	14	7	12	16	14	7	12	16	14	7	12	16	15	7	12	16	15	7	12
To-13′-9″	14	12	7	12	14	13	7	12	14	14	7	12	15	14	7	12					16	15	7	12	16	15	7	12								
To-14′-9″					16	14	6	11	17	16	6	11	17	16	6	11	17	16	6	11	19	18	6	11	19	18	6	11	19	18	6	11	19	18	6	11
To-15′-0″	16	14	7	12	16	14	7	12	17	16	7	12	17	16	7	12	17	16	7	12													19	18	7	12	19	18	7	12
To-16′-0″													18	17	7	12	18	17	7	12	19	18	7	12	19	18	7	12								
To-17′-0″	16	15	7	12	17	16	7	12	17	17	7	12																	21	20	7	12	21	20	7	1
To-18′-0″	16	15	7	13	17	16	7	13	17	16	7	13	18	17	7	13	18	17	7	13	19	18	7	13	19	18	7	13	21	20	7	13	21	20	7	13
To-19′-0″																					21	19	7	13	21	19	7	13								
To-20′-0″																													21	20	10	16	21	20	10	16
To-22′-0″													19	18	7	13	21	19	7	13					21	20	7	13					24	22	10	16
To-23′-0″	16	15	8	14	17	16	8	14	17	16	8	14	19	18	8	14	21	19	8	14	21	19	8	14	21	20	8	14	21	20	11	16	24	22	11	16

Inches

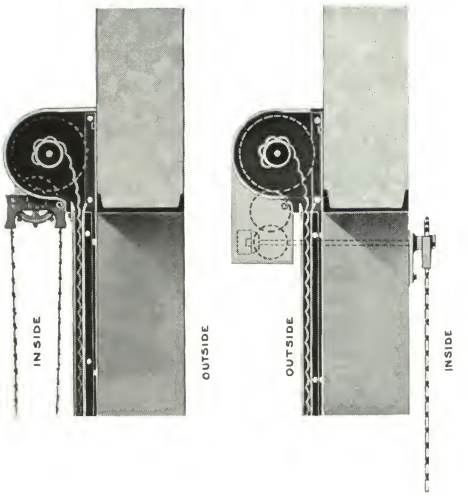
(continued at right)

Height B*	To-18′-11″				To-20′-11″				To-21′-11″				To-22′-11″				To-24′-0″			
Width A*	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F
To-10′-6″	19	18	6	8	19	18	6	8	21	20	7	8	21	20	7	8	21	20	7	8
To-12′-9″	19	18	7	8	19	18	7	8	21	20	8	9	21	20	8	9	21	20	8	9
To-13′-9″	19	19	7	8	24	22	7	8												
To-17′-0″	21	20	8	9					24	22	8	9	24	22	8	9	26	24	8	9
To-20′-0″					24	22	8	9					26	24	8	9				
To-22′-0″	24	22	8	9					26	24	12	9	26	24	12	9	26	24	12	9
To-24′-0″					26	24	12	10	26	24	12	10	26	24	12	10	26	24	12	10

Inches

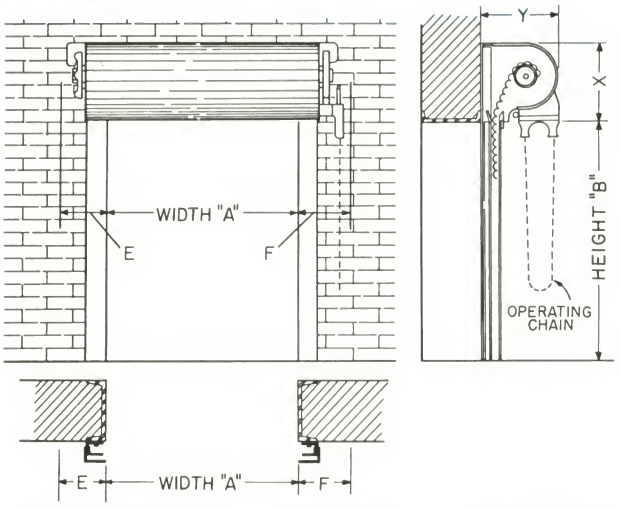
Note: For door mounted outside add 1″ to X dimension.
*For FH-61 add 8″ to F dimension.

Note: Where door dimensions are larger than the dimensions given within a single bracket in the above tables use the data given in the bracket for the next larger width or height.

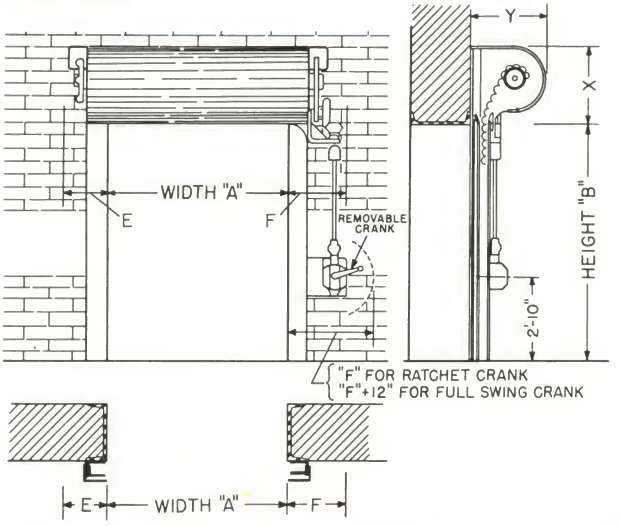


Note: Dimensions are for general reference only and not for construction purposes. For special requirements refer to Engineering Dept.

FH-20, FH-61



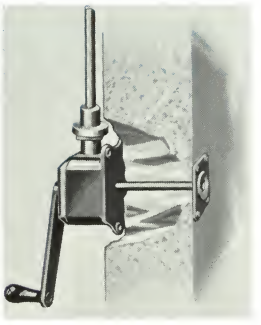
FC-20

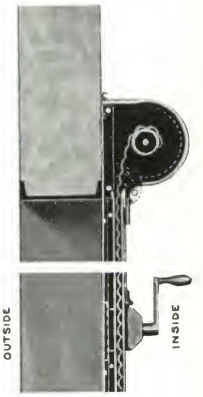


Note: Where door dimensions are larger than the dimensions given within a single bracket in the tables use the data given in the bracket for the next larger width or height.

Height B*	17′				18′				19′				20′				21′				22′				23′				24′			
Width A*	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F
To-11′-0″	17	16	6	11	19	19	7	12	19	19	7	12	21	20	7	12	21	20	8	12	21	20	8	12	21	20	8	12	22	21	8	12
To-13′-9″	17	16	7	12																												
To-14′-9″	21	19	6	11	21	19	7	12	21	20	7	12													24	22	8	12				
To-15′-0″																					24	22	8	12								
To-16′-0″	21	20	7	12	21	20	7	12					24	22	8	12	24	22	8	12					26	24	8	12	26	24	8	12
To-17′-0″									24	22	8	12									26	24	8	12								
To-18′-0″	21	20	7	13	21	20	7	13	24	22	9	13	24	22	9	13	24	22	9	13	26	24	9	13	26	24	9	13	26	24	9	13
To-19′-0″																													27	25	9	13
To-20′-0″																									26	24	10	16				
To-21′-0″	24	22	10	16	24	22	10	16	24	22	10	16	24	22	10	16	24	22	10	16	26	24	10	16	27	25	10	16	27	25	10	16
To-22′-0″																					27	25	10	16								
To-23′-0″	24	22	11	16	24	22	11	16	24	22	11	16	24	22	11	16	26	24	11	16	27	25	11	16	27	25	11	16	27	25	11	16

Inches





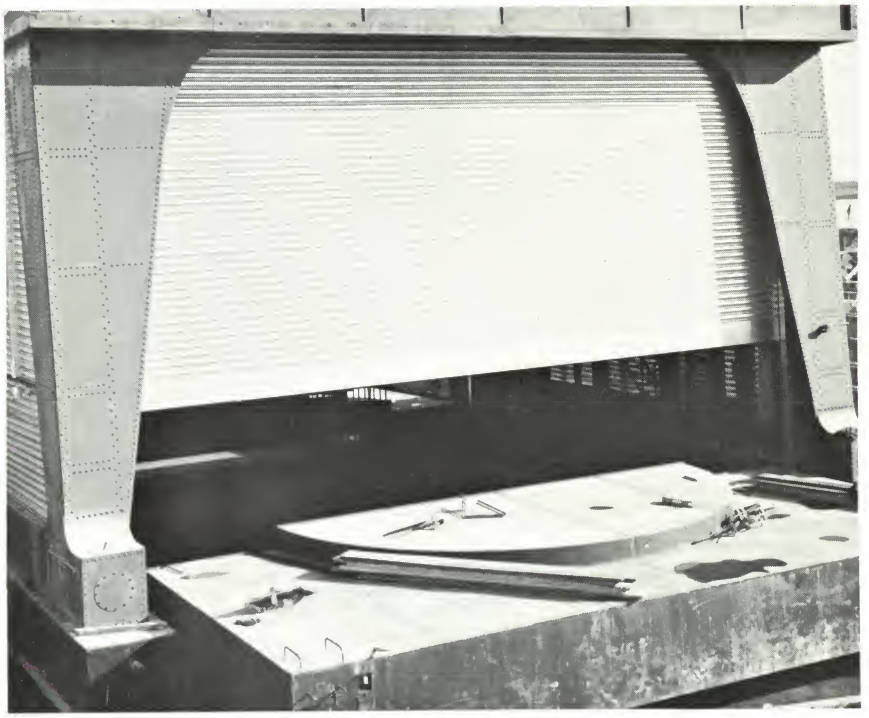
*Inclusive.

KINNEAR
ROLLING DOORS

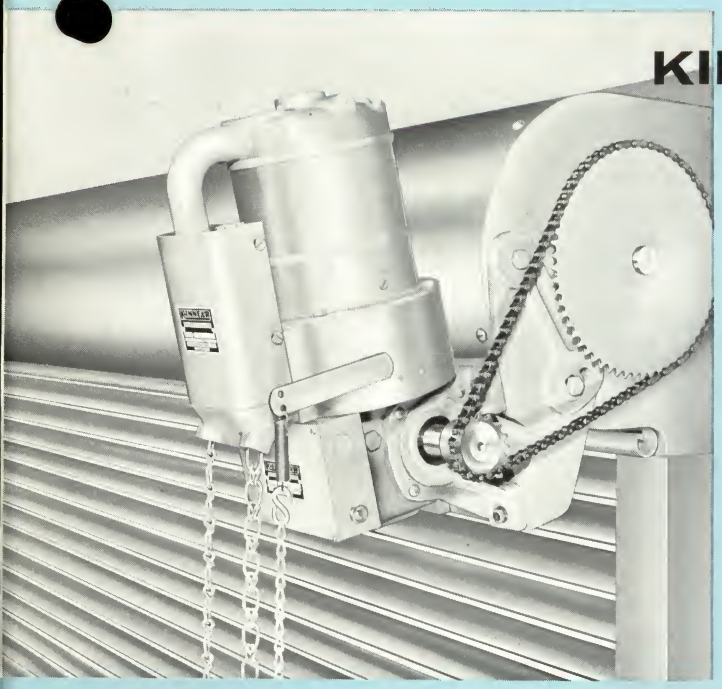
EXTRA RUGGED OR EXTRA LARGE DOORS

. . using the Goliath No. 9 slat

Reported to be the largest aluminum rolling doors in the world are the two 48′0″x39′0″ Kinnear Aluminum Doors over the ends of this 300-ton Traveling Gantry Crane at the St. Lawrence Seaway. The crane works through hatches in the roof of the Generating Station. The electrically operated doors are opened when the crane is moved into position over an open hatch and then closed to permit working inside, regardless of the weather. Among other special provisions, the doors have electrically heated guides to prevent icing.



Consult Kinnear for details and recommendations for extra wide and/or extra high rolling steel doors.



KINNEAR *POWER OPERATORS*

saves labor and time . . . more convenient . . .

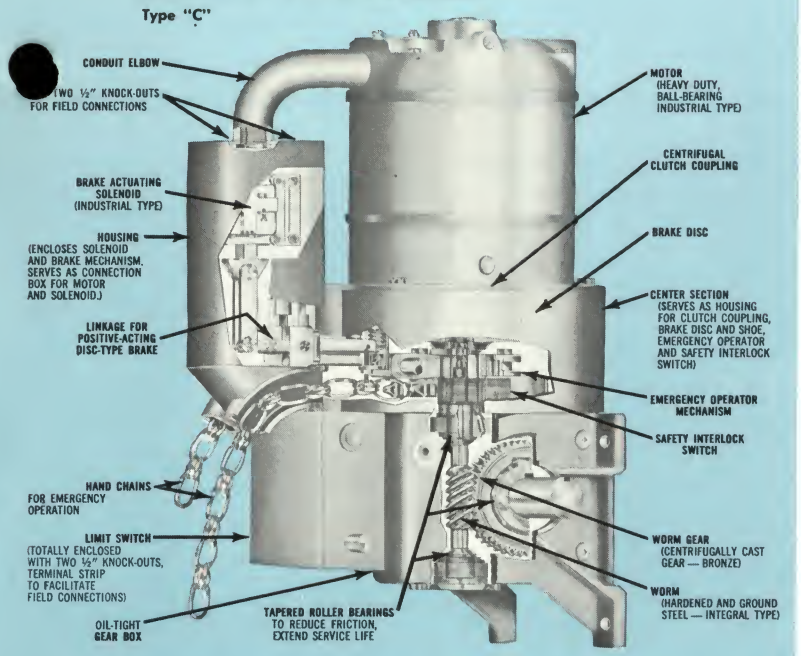
Maximum economy of labor and time is a *must* today, in any business operation. That's why electric power is indispensable in every modern plant or building – and equally essential in efficient door operation. And when your rolling doors are equipped with the modern Kinnear Power Operator, you gain the utmost in door operating efficiency. With just the touch of a button – located adjacent to or at one or more convenient remote points – the door opens or closes quickly and effortlessly. No lost motion! No wasted time or steps. With the minimum loss of heat! Workmen with other duties can also be the "doorman"! All resulting in savings that will quickly make you money on your investment in a Kinnear Operator.

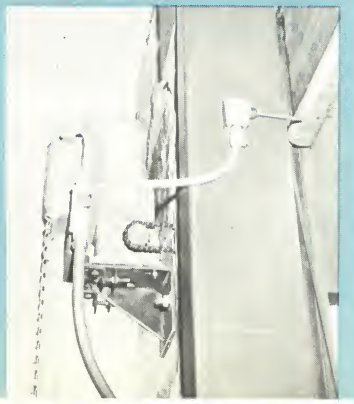
- **Emergency manual operator – quickly actuated from floor level.**
- **Motor easily removed without affecting emergency operator.**
- **Offered in seven sizes – with motor capacity to suit door.**
- **Unit is protected by a finish coat of paint – no field paint required.**
- **All adjustments easily made.**
- **All electrical equipment of industrial quality.**
- **Shipped with correct type and amount of oil.**

Kinnear power units are designed to safely deliver much more power than necessary for normal new door operation. This extra reserve power will operate the door even in a 30 to 40 mile per hour wind or when, through the years, accumulated dirt and successive coats of paint have added to the door weight. Actually a Kinnear power operator is built to satisfactorily operate an old as well as a new door. Be sure you get this *extra value* of a Kinnear power operator.

Kinnear Power Unit

Type "C"





Features

- **Complete assembly, integrated into a neat compact unit – all parts completely enclosed – easy to install.**
- **Motor – heavy duty, high torque, ball bearing type.**
- **Centrifugal clutch coupling – transmits motor torque without shock and prevents stalling the motor.**
- **Disc type brake – provides smooth positive braking action.**
- **Worm gearing – precision type carried on oversize tapered roller bearings.**
- **Requires less sideroom and no additional headroom.**
- **Will permit maximum power with safety.**
- **All essential parts installed in compact specially designed housing.**
- **Can be installed in a variety of positions to suit field conditions and clearances.**
- **Has a much higher efficiency rating due to type of worm gearing and bearings used.**
- **Limit switch of improved design can have extra contacts to control auxiliary features such as heaters, lights, warning bells, etc.**
- **Right and left assembly – can be reversed in the field.**

KINNEAR
ROLLING DOORS

automatic protective devices and safety features

REMOVAL OF MOTOR

Right: Showing how motor can be removed by simply removing four bolts and disconnecting motor leads.

Emergency Hand-Chain Operation – An emergency operator mechanism, easily actuated from the floor level, is built as an integral part of the power unit. Just pull down the "clutch-chain" about 1½ or 2 inches and slip it into the convenient chain keeper. This releases the brake, actuates an interlock switch preventing electrical operation, and engages the emergency operator. The door may then be manually operated by means of convenient hand chains, normally retained, out-of-the-way in a keeper on the wall. Releasing the clutch chain automatically resets the entire mechanism for electrical operation.

Emergency manual operation is not affected by the removal of the motor, in the event such removal is necessary at any time.

Actuating the operator does not affect the timing of the limit switch.

When desired, manual crank operation may be supplied at slight additional cost.

Centrifugal Clutch Coupling Prevents Overloads – Acts as a coupling between the motor and gear reducer, transmits motor torque without shock and prevents stalling the motor. The action of this clutch coupling is *completely automatic.*

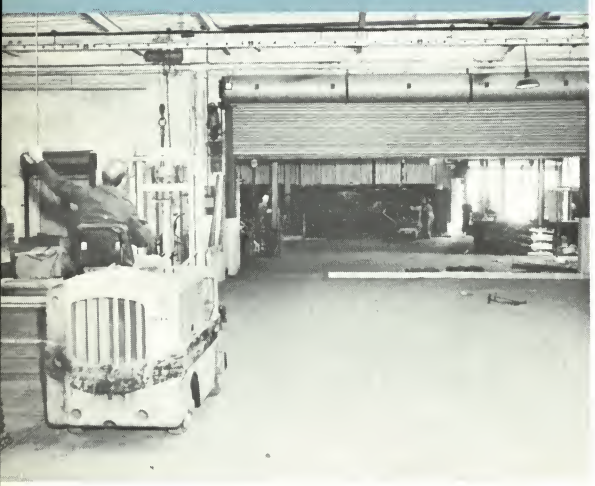
The clutch is disengaged when the motor is idle. The motor starts under no load and at a predetermined speed, smoothly picks up and accelerates the door to operating speed. Wear and tear on the door and the motor, due to shock loading, is practically eliminated.

The clutch will act as a positive drive as long as the motor is running above a predetermined speed. An excessive overload will slow down the motor and permit the clutch to disengage. When the overload is removed, the clutch will automatically re-engage and operate the door. This clutch action *prevents stalling the motor* which eliminates motor burn-out or mechanical damage to the door.

Thermal Protection – To further safeguard the equipment, dual thermal protection – both current and temperature sensing, is built integral with the power unit. Because of this feature, excessive motor current or excessive temperature in the motor or clutch coupling due to any abnormal condition will quickly disconnect the motor from power source.

The centrifugal clutch coupling and the built-in thermal protection in the power unit provide the *ultimate in safe, trouble-free operation of both the door and door operator.*

controls and special features



Three Push-Button Station – While practically any type of automatic control can be furnished with the Kinnear Power Operator, the three push-button type station is supplied as standard. It is a rugged industrial-type station, equipped with three buttons, labelled "open", "close", and "stop". Such a control may be mounted on the wall adjacent to the door or at any one or more convenient remote stations. It may also be suspended from the ceiling in the aisle or passageways so as to be operable by workmen on moving vehicles.

Momentary Pressure Controls – This control may be wired so that a momentary pressure will start the door in motion, causing it to fully open or close to the setting of the limit switches – unless stopped in its travel by momentary pressure of the "stop" button. (Standard unless otherwise specified.)

Constant Pressure Control – Under certain circumstances it may be preferable to have the control wired so that pressure on the button must be maintained until the desired direction of the door travel has been completed. Constant pressure control, in both opening and closing operations, or in only the closing operation may be provided at no additional cost.

Key Controlled – Where it is desired to prevent other than authorized individuals operating a door, a control similar to that described above but operable only by key can be supplied.

Full or Hanging Control – Where motored vehicles, such as lift trucks, must frequently pass through openings where it is desirable to keep the door closed as much as possible, a suspended type of control can be furnished. Such a control can be located on an aisle or passageway a short distance from, and on both sides of the opening, and be constituted of a pull-cord that activates a control switch. Or where preferred, a three-button control like described at left can be suspended on a flexible cable. Either type can be wired so that the truck driver can perform the desired sequence of operations without stopping or leaving the vehicle.

combination safety device and weatherseal

The Kinnear Safety Device is a desirable accessory and is especially recommended where the door control is so located that there is no chance of the individual operating the door not having a continual unobstructed view of the doorway.

The Kinnear Safety Device is an electrical device working in conjunction with the Operator Control. A compressible strip is mounted along the bottom of the rolling door curtain. In the event that the curtain in its downward travel comes in contact with any object in the opening, this strip compresses—activating the electrical control that automatically stops and reverses the curtain travel, causing it to return to the fully raised position.

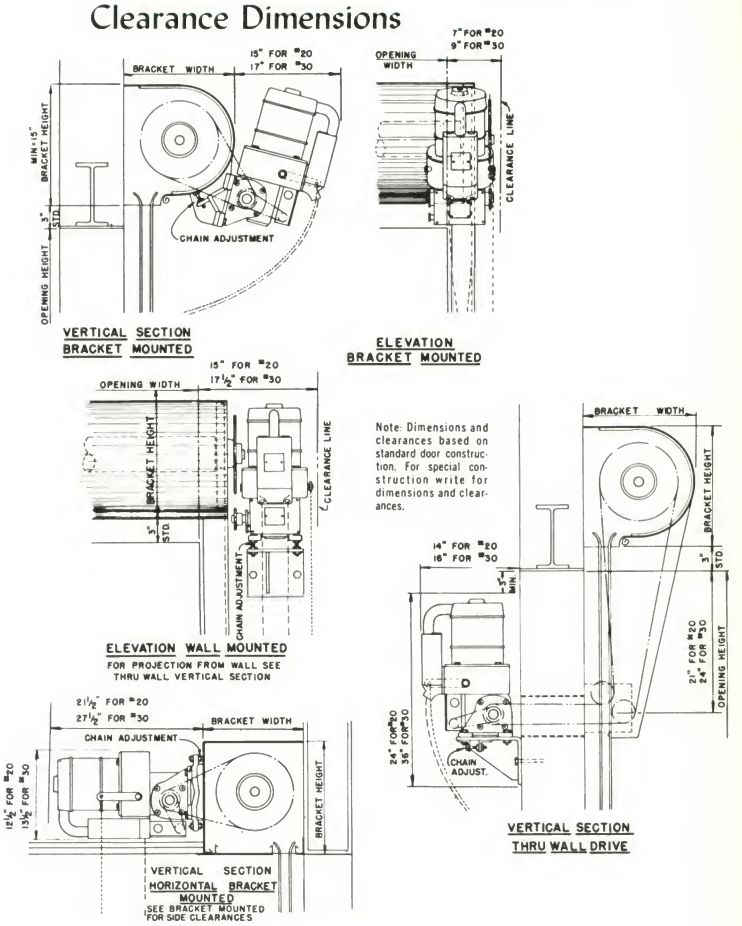
The compressible strip also serves as a weatherseal along the bottom of the door.

With this device, the hazards of injury to persons or objects in the doorway during closure of the door, are reduced to the minimum.

(For more complete details see page 9)

Note: Kinnear power operated doors are designed to allow an extra clearance at the head of the opening. This compensates for the difference in operating conditions between winter and summer. Under normal conditions it is not necessary to adjust the limit switch seasonally.

Clearance Dimensions



Other Types of Controls—Controls in general use that operate similar to those described at left and are available at extra cost, are:

- **Weather-proof—For outdoor use.**
- **Explosion-proof—For hazardous locations.**
- **Oil-tight and Dirt-tight—For locations of excessive oil or dirt.**

Low Voltage Control—Where codes or conditions require, controls of the low voltage type can be supplied at extra cost.

Automatic Reversal—It is sometimes desirable to supplement constant pressure control of door closing with an automatic reversal feature. Upon releasing pressure on the "close" button at any intermediate point, the door will automatically reverse its travel and return to its fully opened position. This can be provided at extra cost.

Extra Limit Switches—Where frequent access through a large doorway does not require the door being fully opened, it is sometimes desirable to have the travel of the door automatically stopped at some intermediate opened position. This can be accomplished by the use of an extra limit switch (at extra cost) in the control system. When included the door can be fully opened or closed, from the intermediate "stop" position by actuating the appropriate control button.

Time Delay—If it is desired to delay door operation any specified time after the master control is activated, such provision can be incorporated in the control system at extra cost.

Relays—Where door operation is to be controlled and interlocked with other doors or with the other equipment, Kinnear Power Operators can be provided with extra relays at extra cost.

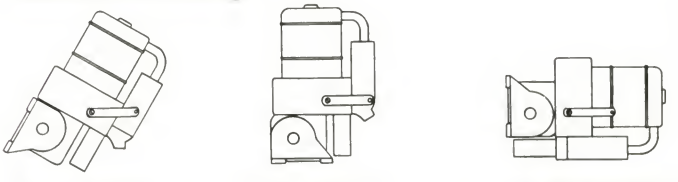
Special Enclosures—Kinnear Power Operator can be furnished with special explosion-proof, dust-tight or weather-tight enclosures.

Specifications

Electrically operated doors shall be provided with a compact unit requiring a minimum of side clearance similar to Type "C" Operator as manufactured by the Kinnear Manufacturing Company, Columbus, Ohio. Motor to be high starting torque, hoist type, having sufficient power to operate door at an approximate average speed of one foot per second. Unit to be controlled by momentary contact three-button push-button station marked "open", "close", and "stop", and an automatic screw-type limit switch which will break the circuit at termination of travel. High efficiency worm gearing, running in an oil bath shall be furnished together with a spring-set solenoid-operated brake completely housed to protect against damage, dust and moisture, and a magnetic reversing contactor in NEMA Type 1 enclosure. An emergency hand chain operator which does not affect the timing of the limit switch shall be provided to operate the door in case of power failure or removal of motor for inspection or servicing. Operator shall be designed to transmit motion to the door without shock and automatically release motor from driving unit prior to stalling, so as to prevent any damage to unit from any type of overload. An efficient overload protective device, which will break the control circuit and eliminate any possible damage to motor windings, shall be both heat and current sensing, and installed integral with the unit. A terminal strip shall be provided in limit switch to facilitate field wiring of control circuit.

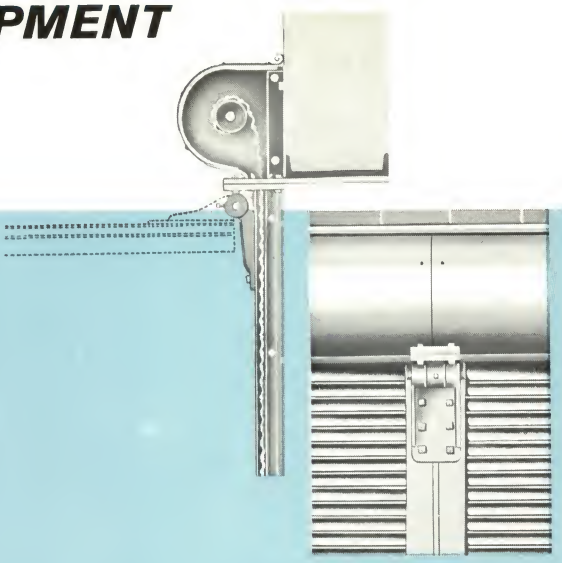
Note: Dimensions and clearances based on standard door construction. For special construction write for dimensions and clearances.

Methods of mounting:



- **Angular**
- **Vertical**
- **Horizontal**

KINNEAR ROLLING DOORS — ADDITIONAL EQUIPMENT



wicket or pass door

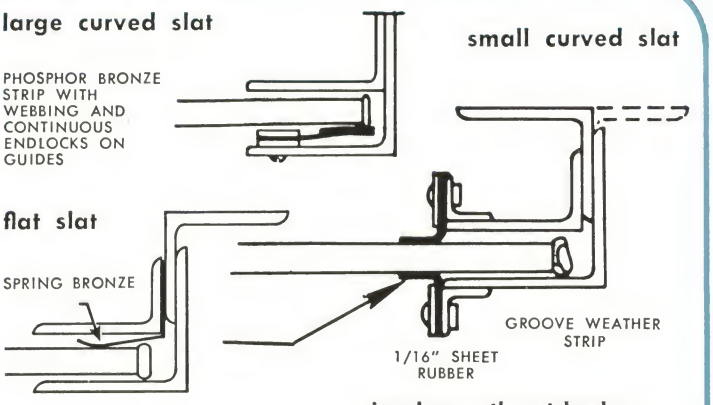
The wicket or pass door provides an entrance without raising the major door. It is an ideal arrangement where there is no access to the building other than by the main opening. The wicket is a flush panel metal door hinged to an angle frame with butt hinges and provided with cylinder lock and knob. The frame is hinged to the side guide. The frame is constructed of angles forming grooves in which the roller door travels. When the rolling door is raised, the wicket door and frame are swung back against the wall.

intermediate movable post

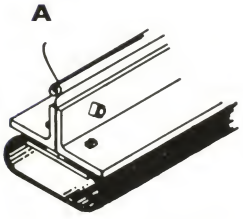
Very wide openings can frequently be more conveniently closed by a number of doors than by a single large one, using movable posts or mullions with the edges constructed to form double grooves. Hinged to the bracket, these posts are swung up out of the way when the doors are open. Ordinarily the posts swing perpendicularly to the plane of the curtain, but can be arranged to swing obliquely; slide to the side of the opening by a trolley on a horizontal overhead track; or other methods suited to the individual needs. Details of special arrangements will be submitted upon request.

weather protective devices

Kinnear service doors are designed for close fit, in keeping with smooth, trouble-free operation. Where additional protection against wind and weather is desirable, weathering provisions are available at extra cost. These Kinnear features minimize water and air infiltration by means of weatherstripping that is attached continuously to both sides of the groove angle, to contact both sides of the curtain, or a spring bronze lining mounted inside the groove, as shown at the right. Also to insure close seating at the sill a choice of either loop type or tubular type rubber astragal (see illustrations A and B) is attached to the bottom angles of the door. To prevent infiltration at the top of the door a continuous weatherstrip is clamped along lintel (see illustration C); or space around the barrel can be closed by a rubber air baffle (illustration D) that is attached to hood connection and extends the full length of the barrel.

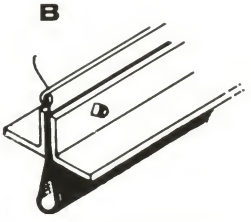


A



TUBULAR TYPE ASTRAGAL ON BOTTOM BAR

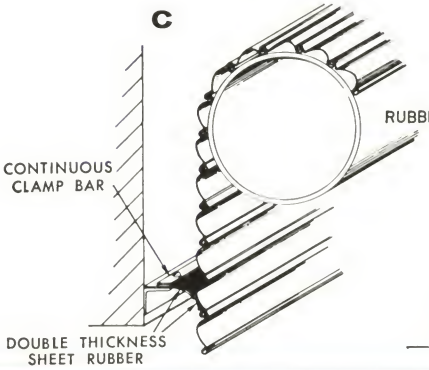
B



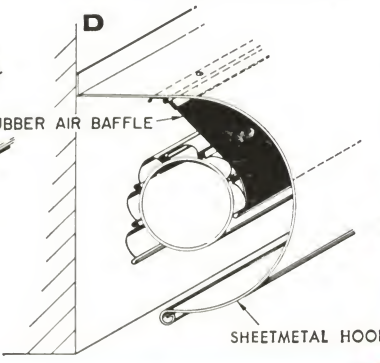
LOOP TYPE ASTRAGAL ON BOTTOM BAR

jamb weatherstripping

C



D



fenestration

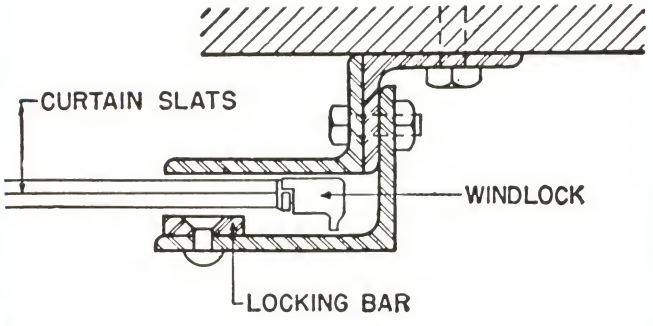
Another Available Feature To The Time-Proved Efficiency Of Kinnear Rolling Door Design—where it's desirable to have light and visibility.

Basic structural design of the standard Kinnear Rolling Door remains unchanged. A rugged and durable barricade that's extra tough to penetrate.

Narrow transparent panes of clear Plexiglas (or similar plastic) can be provided at an extra charge in one or more interlocking steel slats in the curtain of the Kinnear Rolling Door. With the fenestration made possible with these "Window Slats" at or near eye level, anyone inside the building can readily see outside without opening the door. Also the windows admit daylight when the door is closed. In other details of construction the door is similar to the standard Kinnear Rolling Door described on preceding pages.

windlocks

Illustration shows how endlocks are designed with lug, which engages with a locking bar attached to the guide. This prevents curtain from leaving guide because of deflection from tremendous wind pressure or other forces. Provided wherever door is to be subject to extreme wind pressure. Otherwise type of endlock described on page 5 is used.



SUGGESTED SPECIFICATIONS

for steel rolling doors

openings—Shall be equipped with Kinnear Steel Rolling Doors.

curtain—Shall be of interlocking slats, rolled not drawn, formed in easy curves without sharp bends, from open hearth galvanized steel (for gauge see table below). Slats to be of section sufficiently large to give curtain strength to safely resist a wind load of 20 lb. per sq. ft. For doors 20½ ft. or more wide with 340 sq. ft. area or more, and in all doors 24 ft. wide or more, curtain shall be provided with slat lugs as windlocks to engage bars in guides and to lock the curtain against wind pressure. Each alternate slat shall be fitted with malleable endlocks ⅜ in. thick. Bottom bar to be two angles placed back to back.

galvanizing—To be hot process, with a high grade pure zinc coating. 1.25 oz. per sq. ft. of flat metal, per ASTM Standards. Galvanized surfaces to be provided with a phosphate coating for paint adhesion. Manufacturer to provide a warranty of compliance to this coating specification.

counterbalance—Curtain to be coiled on a pipe of size sufficient to carry the door load with a deflection not to exceed .03 in. per ft. of opening width, and to be evenly balanced by helical springs contained in pipe, and all springs anchored to the same tension rod and held in position by the same adjusting wheel accessible from the outside.

coil brackets—To be of high grade iron designed to house ends of the coils.

hood—The coil to be housed with a sheet metal hood No. 24 U.S. gauge.

guides—Built of structural steel to form a slot of sufficient depth to retain curtain in guides, against heavy wind pressure, and for doors requiring windlocks, guides must be provided with anchors for windlocks.

table of slat gauges

Height	Width	U.S. Gauge
0′ to 8′ 4″	0′ to 13′ 9″	22
	13′ 10″ to 20′ 4″	20
	20′ 5″ to 30′ 4″	18
	30′ 5″ up	*
8′ 5″ to 12′ 4″	0′ to 12′ 9″	22
	12′ 10″ to 20′ 4″	20
	20′ 5″ to 30′ 4″	18
	30′ 5″ up	*
12′ 5″ to 28′ 4″	0′ to 12′ 9″	22
	12′ 10″ to 18′ 4″	20
	18′ 5″ to 30′ 4″	18
	30′ 5″ up	*

*Refer to factory

gears—To be of best grade gray iron, cast teeth machine-moulded from machine-cut patterns, except machine-cut teeth on motor operated doors.

erection—All doors shall be erected by the manufacturer or his authorized representative and shall be guaranteed for a period of one year from the date of completion of erection that any part defective in material or workmanship will be replaced without charge to the customer.

electric operators

For Specifications, see Power Operator Specifications on Page 17.

General Notes: Complete current characteristics should accompany all requests for quotations. The wire, conduit, service disconnect switch and fuses which the installation of power operation necessitates are not furnished or installed by the Kinnear Manufacturing Company, but are to be provided by others in accordance with wiring diagram supplied by Kinnear.

If aluminum construction is desired, write for suggested specifications.

KINNEAR ROLLING DOORS "AKBAR"* LABELED FIRE DOORS

"Akbar" Fire Doors are for fire protection purposes for openings in new or old buildings that require Underwriters' Labeled equipment, where insurance rates are a consideration, particularly for plants, offices and other buildings housing people.

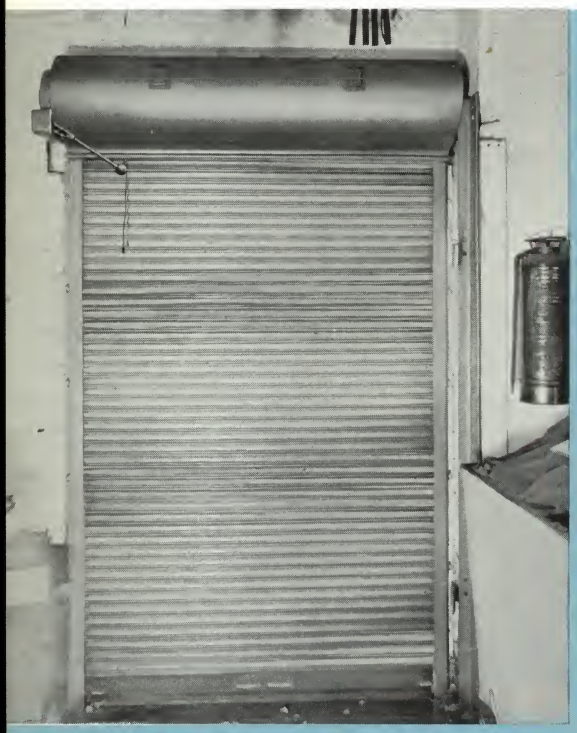
Although provided with mechanism for automatic closure, "Akbar" doors can be arranged for manual, chain hoist, or crankshaft operation for service door use. If Kinnear engineers are given the opportunity during the designing of projects, it is generally possible to provide for concealment of all working parts. Kinnear can furnish the doors inspected and labeled as a fire door for installation in properly framed openings by others.

Underwriters' Label

3 hr. class A label of the Underwriters' Laboratories, Inc. is carried on AKBAR Doors for all installations* in INTERIOR fire walls, corridor and room partitions, and vertical shaft openings.

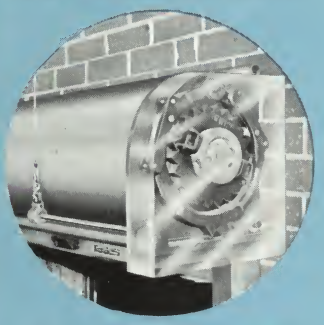
1½ hr. class D label of the Underwriters' Laboratories, Inc. is carried on AKBAR Doors for all installations* in EXTERIOR wall openings.

*"Akbar Fire Doors" for openings up to 120 square feet, but not exceeding 12 feet in width or height, bear the label of the Underwriters' Laboratories, Inc. Doors for larger openings will be furnished, and when not exceeding 24 feet in either width or height, will be provided with an Underwriters' Laboratories certificate of inspection indicating that the construction of the doors conforms to the specifications of the Laboratories.

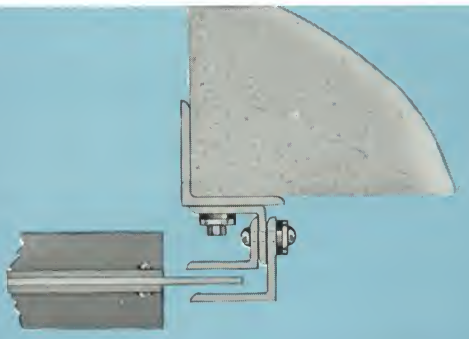


Showing an Akbar Fire Door that has gone through a fire, having confined a devastating fire to a room on the other side of the fire wall. Note that fire extinguisher is still in place on the wall.

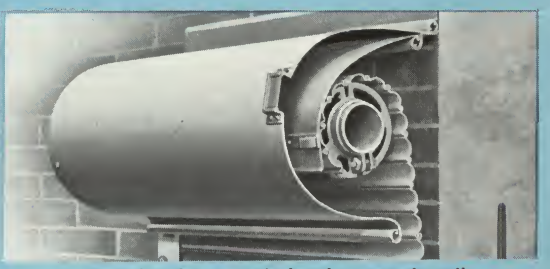
Mechanism of chain hoist AKBAR Fire Door (hood removed).



Manual AKBAR operating mechanism.



Showing two of the AKBAR provisions for expansion. Also shows the recommended way of mounting curtain guides on a continuous angle. (Supplied by others when preparing opening.)



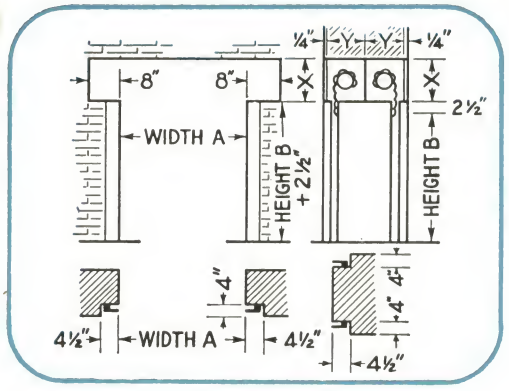
Drop-hood over main head on curtain coil.

special "Akbar" features

1. Automatic Closure, positive drive from open position, by auxiliary motor spring (independent of counterbalance spring). Improved barrel lock prevents further rotation of barrel, and suspends curtain in proper closed position.
2. Safety Governor controls downward travel, minimizing accident possibilities. Also prevents impact on sills, rebound, and jamming of slats—an Underwriters' requirement for fire doors.
3. Door can be readily opened after automatic closure since tension of counterbalance spring is not released in automatic closure. Allows emergency exit service, after which door will again reclose.
4. Automatic mechanism can be quickly reset and door raised to open position after automatic closure, thus preparing door for either automatic or service operation. Because of easy reset, "Akbar" doors can be readily tested.
5. Drop-hood, or baffle, where required, operates automatically in case of fire to effectively prevent passage of flames or smoke.

door types

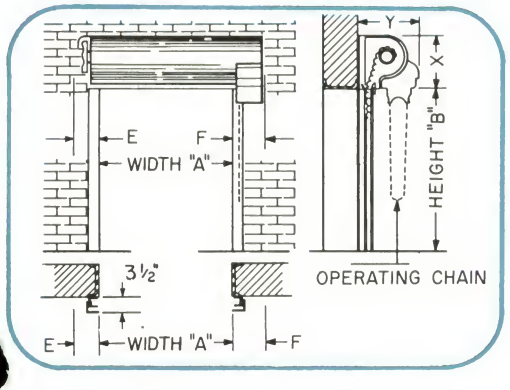
Model BMA — CHAIN HOIST OPERATION *(under lintel mounting)*



NOTE: These models are for Interior Class A openings. Similar models are available for Exterior Class D openings. Consult your local inspection bureau for opening class required.

Height B*	6′		7′		8′		9′		10′		11′		12′		
Width A*	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	
3′-4′	17	13	17	13	17	13	17	14	18	15	18	15	20	17	Inches
5′											20	17			
6′					17	14			19	16					
7′			17	14			19	16							
8′-9′					19	16									
10′			19	16											

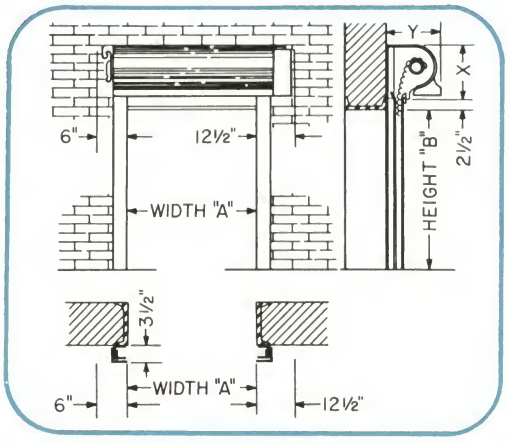
Model FHA — CHAIN OPERATION *(face mounting)*



Height B*	6′, 7′, 8′				9′				10′				11′				12′			
Width A*	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F
5′-7′	17	20	9	9	17	20	9	9	17	20	9	9	17	20	9	9	17	20	9	9
8′	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10
9′																				
10′									18	21	9	11	18	21	7	11	18	21	7	11
11′									18	21	7	11								
12′	17	20	10	10	17	20	7	10	18	21	7	12	18	21	7	12	18	21	7	12

Inches

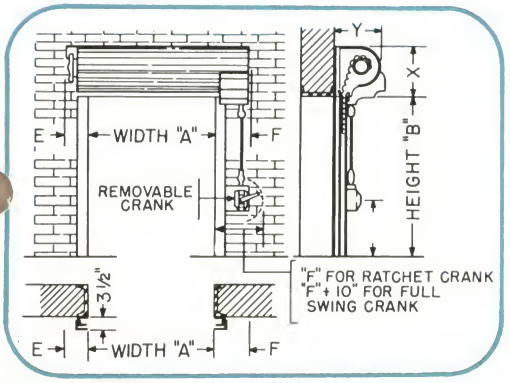
Model FMA — MANUAL OPERATION *(face mounting)*



Height B*	6′		7′		8′		9′		10′		11′		12′		
Width A*	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	
3′	15	16	15	16	15	16	17	18	17	18	18	18	19	19	Inches
4′															
5′					16	16					19	19			
6′			16	16			18	18	19	19					
7′					18	18									
8′-9′			18	18											
10′															

NOTE: Manual operation not recommended for sizes exceeding 80 sq. ft. in area.
NOTE: Dimensions in above tables also apply to fire doors for Class "B", "C" and "D" openings.

Model FCA — CRANK OPERATION *(face mounting)*

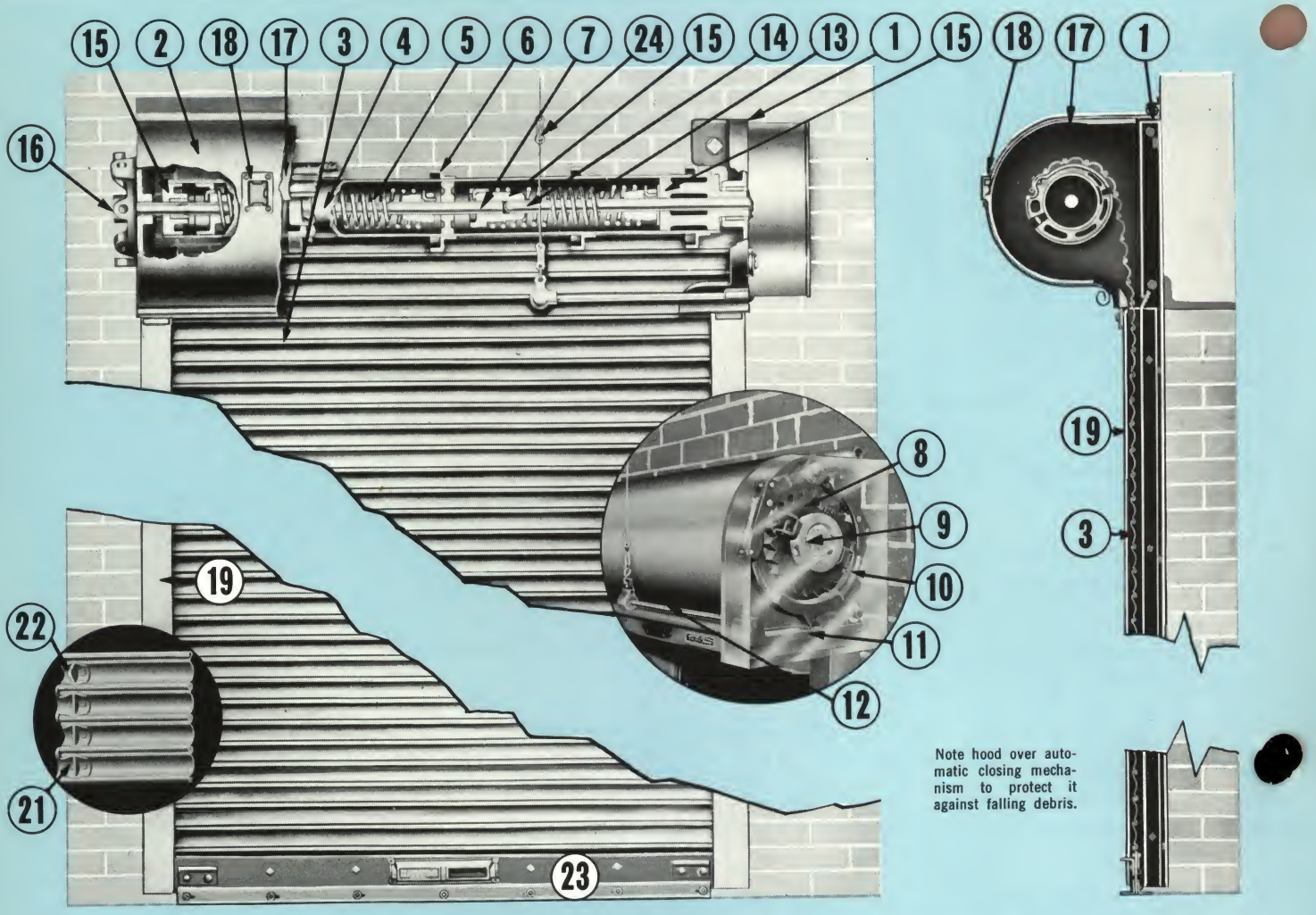


Height B*	6′, 7′, 8′				9′				10′				11′				12′			
Width A*	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F
5′-8′	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12
9′																				
10′									17	17	7	12	18	18	7	12	18	18	7	12
11′																				
12′	17	17	10	13	17	17	7	13	17	17	7	13	18	18	7	13	18	18	7	13

Inches

NOTE: All dimensions given in this catalog are for general reference only and not for construction purposes.
*Inclusive.

CONSTRUCTION FEATURES



Note hood over automatic closing mechanism to protect it against falling debris.

Kinnear "Akbar" Fire Doors embody numerous construction features—such as the exclusive Safety Governor—which make them a foremost fire protective device.

1 brackets—High test gray iron, providing a high safety factor. Integrally cast bracket mouth and stops give smooth operation and eliminate excessive drag of curtain on stops. (One on left of illustration is designated as A. W. bracket in case illustration is referred to when ordering parts.)

2 hoods—Neatly formed from hot galvanized sheet metal of No. 24 U.S. gauge, fitted to give tight enclosure to coil. Reinforcing beads or flanges prevent deflection.

3 curtain—Composed of interlocking slats of hot dipped galvanized steel and not less than No. 20 U.S. gauge on Class A, B and C doors, and No. 22 U.S. gauge on Class D doors. Slats are designed with a high crown to provide rigidity. Hinging centers are arranged to give free action to the curtain and to nest properly when coiled. See pages 4 and 5 for details of Kinnear slats.

4 spring barrel—Encases counterbalance mechanism. Made from heavy steel tubing of thickness and diameter particularly designed to carry the curtain load and minimize deflection. Main bearing in supporting barrel is a roller bearing.

5 counterbalance—Composed of helical springs wound from especially heat treated steel and tempered with oil. Individually tailored for each job and all springs anchored to same tension rod, held in position by same adjusting wheel accessibly located on the outside of the bracket.

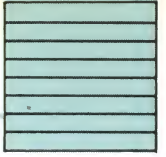
6 rings—Rings of malleable iron of special involute shape and split type are designed to coil the curtain with a uniformly increasing diameter. These can be installed or removed on the door without dismounting spring barrel or brackets. Initial diameter is sufficient to insure uniform and constant counterbalance for all points of the door travel.

7 shafting or tension rod—Of cold rolled polished steel to minimize friction in all bearings. Of ample size for the torsional load of counterbalance.

8 and 9 auxiliary retaining wheels—Wheels are attached to the tension rod (14) of the auxiliary spring (15). This spring, therefore, can function only when the wheels are free to turn after being released for automatic closure.

10 safety governor—An exclusive feature of all "AKBAR" Doors and a feature required by the Underwriters' Laboratory. Governor retains the wheels (8 and 9) and is itself held in place by the release lever (11 and 12). When these levers release the governor, wheels can revolve only at a safe speed. Therefore, the force of the auxiliary spring (13) is controlled, minimizing danger of personal injury and door closing with impact on the floor.

11 and 12 release levers—The automatic closing mechanism is retained by these levers. All contact points are either covered with or made from non-corrodible metals to eliminate any possible freezing together. The lever (12) is held up by fusible links (25) which release at 160°F.



13 and 14 auxiliary spring and tension rod – Spring is anchored to the tension rod, which is in turn held in place by the auxiliary wheels (8 and 9). It always carries stored-up energy, sufficient for completely and positively closing the door from any position in the opening when automatically released. Independent of the counterbalance spring, the counterbalance is accordingly undisturbed when door is automatically closed.

15 barrel plugs – Heavy cast iron plugs machined where necessary to fit into barrel ends. Specially designed to hold, and eliminate the usual excessive strains at the spring ends.

16 adjustment wheel – This is connected to the tension rod (7) carrying the counterbalance spring or springs and attached to the bracket opposite the one carrying the automatic mechanism. The tension of the counterbalance spring is controlled by this wheel, permitting simultaneous and uniform adjustment of all door's operating balance springs.

17 drop-hood or baffle – A metal shield of the same gauge as the hood is attached to the main hood by a continuous beaded joint, permitting the shield to hinge over the curtain coil. This shield forms the drop-hood and is held up out of the way by a fusible link attachment (18). In case of fire, the link melts and the drop-hood drops on the coil and becomes a baffle against passage of hot gases around the bracket.

18 hood fusible links – These links hold the drop-hood or baffle out of the way during normal operation, and are distributed to provide necessary alignment. Fusible at 160°F.

19 guides – Of structural steel of at least $\frac{3}{16}$ in. thickness. Slotted holes are provided for the rivets holding angles or plates together and for the bolts securing guide to the wall. Heat-destructible washers underneath the heads of the rivets and bolts provide means for expansion and minimizes danger of buckling in case of fire. Depth of grooves is increased to accommodate the increase in width of openings.

20 clearance – Sufficient clearance is provided between ends of curtain and back of guides and between all other operating parts, to accommodate expansion for temperatures up to and including 1800°F.

21 endlocks – Placed on every slat and made of malleable iron shaped to close the concave ends of slats and to prevent the passage of hot gases and smoke around the edge of curtain. Endlocks retain slats in place, maintain alignment and protect the slats against abrasion in guides.

22 curtain locks – The weight of the curtain is balanced by springs, but when the curtain is down in the closed position, it is also supported by a curtain lock which engages in the bracket throat, in order to eliminate danger of the curtain collapsing in case the temper of the springs is lost from the excessive heat in case of fire.

23 bottom bar – Made of two angles and a flat plate, designed to reinforce the bottom of the curtain. Provided with handles for raising the door and with stops for retaining it, when open, in an exact position against the coil bracket, free for a direct start in closing automatically in case of fire. Slide bolt locks, as used on service doors, can be furnished on these bottom bars when specified.

24 automatic fuse unit – Fusible link holds the door in readiness in case of fire and disintegrates when exposed to a temperature of 160°F., releasing door closing mechanism.

specifications

"Akbar" steel rolling fire doors

(Underwriters' labeled)

openings – Shall be equipped with Kinnear Steel Rolling Automatic Fire Doors of the "Akbar" Construction.

label – All doors, when opening size permits, to bear the required label of the Underwriters' Laboratories.

operation – All doors to be automatic closing in the event of fire. Doors not exceeding 8 ft. high or 80 sq. ft. in area can be operated by means of handles on the bottom bar; but larger sizes should be operated through reduction gear by hand chain (or crank).

automatic closing device – To be thermally controlled by means of a fusible link. The door shall not depend on gravity for closing but shall be forced to a closed position by an auxiliary spring in spring barrel which is inoperative during normal operation and released by thermal control without affecting the permanent adjustment of the counterbalance spring.

counterbalance – Curtain to be balanced by helical springs within spring barrel. All counterbalance springs shall be anchored to same tension rod, held in fixed position by the same adjusting wheel accessibly located on the outside of the bracket. Counterbalance to be permanently maintained, and doors shall operate normally and be readily operable after automatic closure.

safety device – To be an automatic governor of escapement type inoperative during normal operation but which shall so control the speed of the curtain during automatic operations as to avoid injury to persons accidentally under the door.

curtain – To be of Kinnear interlocking slats rolled from steel with no sharp bends and hot galvanized. The ends of the slats to be fitted with endlocks $\frac{5}{8}$ in. thick. Gauge of metal and type of endlocks as established by Underwriters' Laboratories.

brackets – To be high grade cast iron with roller or ball bearings in bracket for revolving end of barrel.

guides – To be of structural steel $\frac{3}{16}$ in. thick arranged for expansion at all rivet and bolt connections.

hoods – The coils to be enclosed with galvanized sheet metal housing of No. 24 U.S. gauge. For doors on interior wall, hoods to be furnished with a drop-hood thermally controlled, closing against the coil when automatically released.

paint – All parts of the door except mechanism to be given one shop coat; mechanism dipped in flat black.

erection – All doors shall be erected by the manufacturer or his authorized representative and shall be guaranteed for a period of one year from the date of completion of erection, that any part defective in material or workmanship will be replaced without charge.

fire shutters

(Underwriters' labeled)

"Superior" Fire Shutters, designed especially for window openings, have substantially the same design as "Akbar" Fire Doors, except that they are not constructed for service raising and closing. They incorporate the following features:

1 Positive automatic closure.

2 Safety governor to prevent excessive speed and to limit closing impact.

3 Counterbalance spring which is not affected by door testing or automatic closure and requires no adjustment when once set.

4 Removable crank operates gearless rewind mechanism for raising and resetting curtain.

In addition, shutters can be tested or closed at any time by releasing chain from keeper located on inside of wall.

KINNEAR ROLLING DOORS — ROLLING COUNTER SHUTTERS

Today's buildings, designed with heavy emphasis on functional efficiency and increasing use of Kinnear Rolling Shutters as closures for service counters, lunch and kitchen counters, coliseums and thru-way service centers, concessions, ticket and teller windows, bars, terminal stands, booths, alcoves, and other areas. Mounted either on the face-of-wall or between jambs and coiling upward like window blinds, they provide the utmost convenience in minimum space.

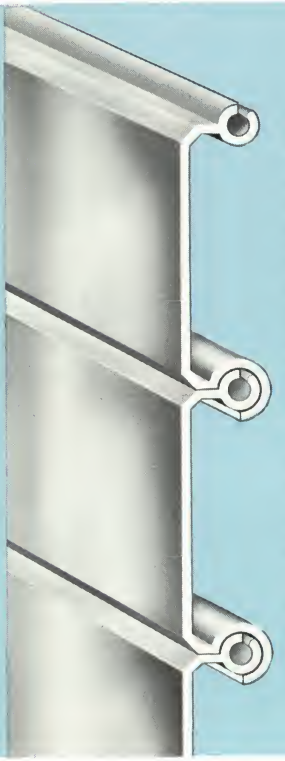
As a further improvement for this need, Kinnear has adapted the basic design of their time-tested Metal Rolling Doors to counter shutters having a curtain of flat interlocking "Midget" slats with 1½ " centers. These slats (for openings not over 20' wide) can be either extruded aluminum, or of roll-formed steel or other metals.

features

- Combines functional design with architecturally modern appearance
- Design that harmonizes with tile, blocks, terrazzo, wood, and other artistic surroundings
- Flat clean-cut exterior—no exposed hardware or fixtures
- Protection against pilfering, illegal entry or weather
- Coils compactly above opening—space-saving
- Spring counterbalanced for easy, convenient operation
- Lifetime, care-free service—easy to clean
- Requires no painting when built of aluminum
- Flexibility of application suited to many uses
- Custom-built to specified opening size

Automatic closing mechanism for fire protection. Available on all types. For locations where it would be desirable to have the shutter close automatically in order to prevent drafts in case of fire, the Kinnear Counter Shutter may be provided with automatic closing mechanism. This causes the shutter to drop closed automatically when dangerous temperature melts a fusible retaining link, thus actuating the closing mechanism. This provision does not effect counterbalance for normal daily operation of the shutter.

Note: Roll Formed is also available in aluminum and other metals on special order.

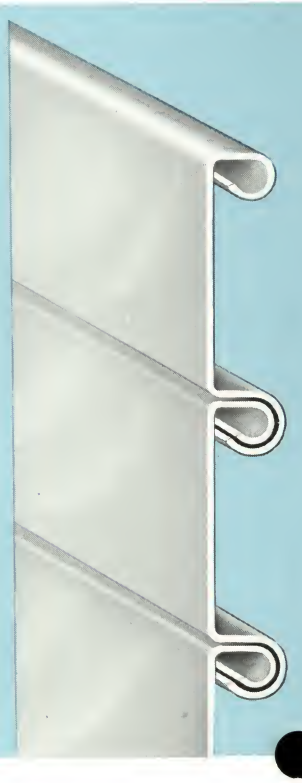


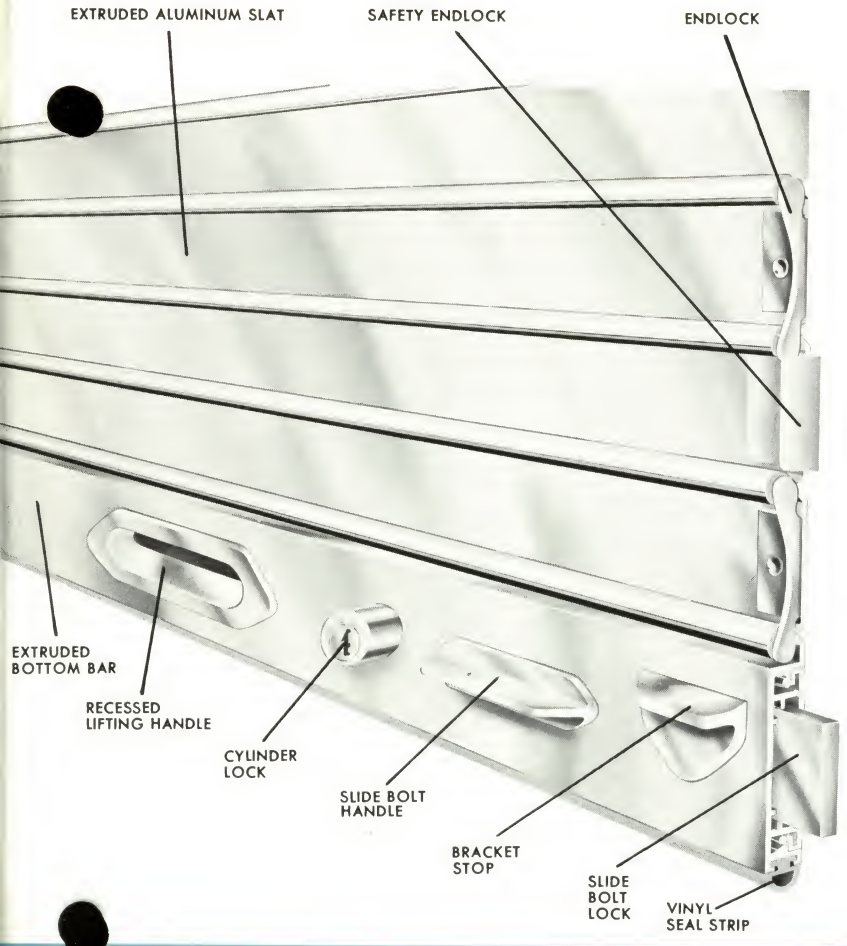
extruded aluminum

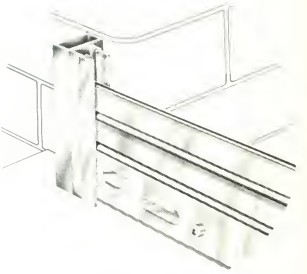
AT LEFT is a full-sized view of a section of Kinnear Slat No. 17E, extruded of .050"-thick aluminum. Note that it is designed with the same interlocking characteristics as those for which Kinnear Rolling Doors are so well known.

roll-formed steel

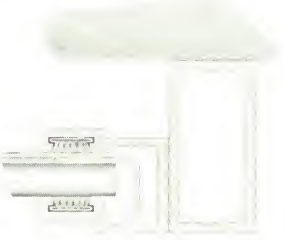
AT RIGHT, shown in actual size, is a section of Kinnear Slat No. 17, roll-formed of either 22 or 24 U.S. gauge steel. Note its clean, flat appearance. Also available in aluminum or other metals.





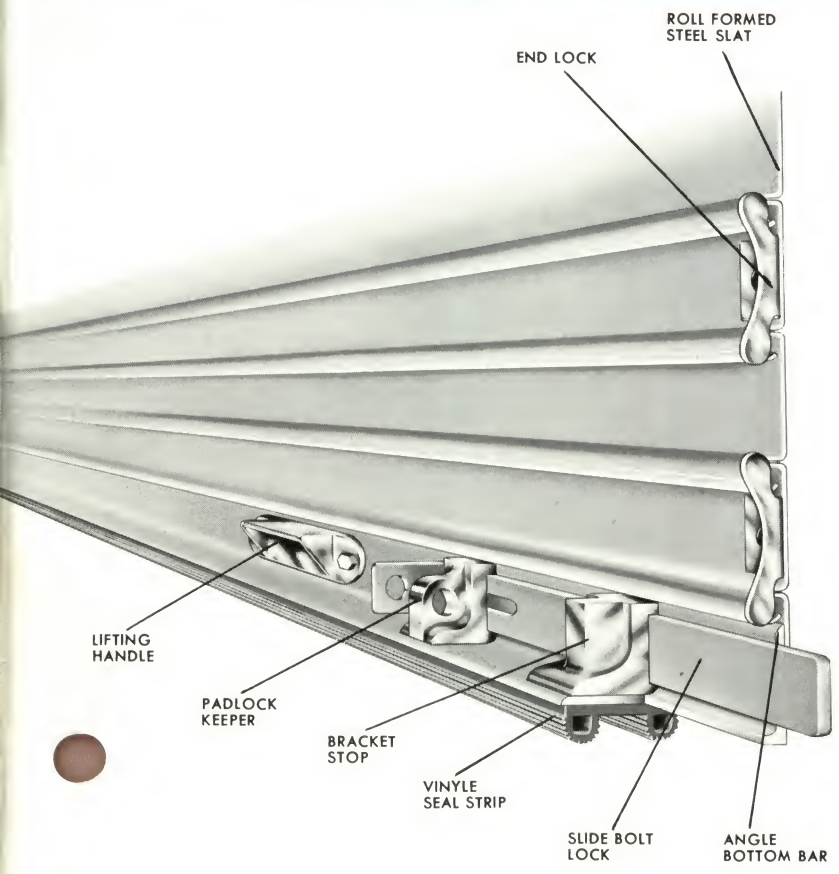


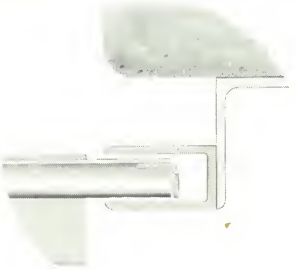
Extruded aluminum curtain guide has heavy nap inserts for quiet operation, and dust-tight closure. Left shows between-jamb mounting; right shows face-of-wall mounting.



Shows how the safety endlock secures curtain from being sprung out of guide.

Where width of opening makes it desirable to use two or more shutters, an extruded boxed-in type removable mullion is available. It provides curtain retaining grooves and is fitted with locking bolt on the inside.

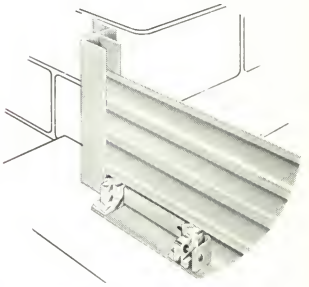




Note channel guide.

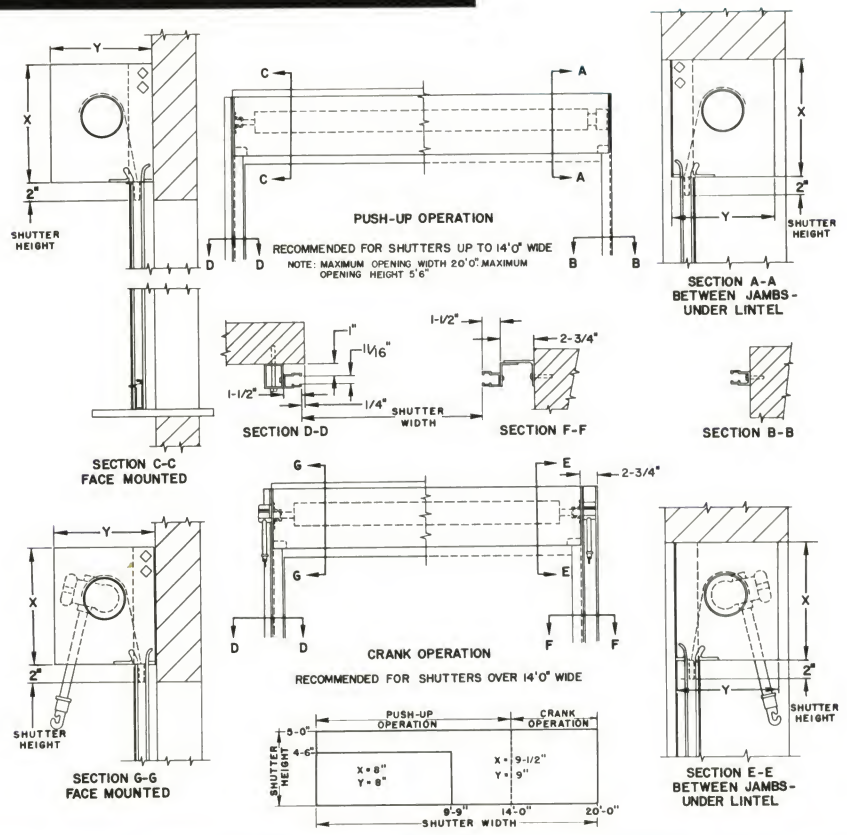
Illustrates housing of reduction gearing and attachment for operating shutters over 14 ft. wide.

"Removable mullion available for Roll Formed Shutters similar to extruded shown above."

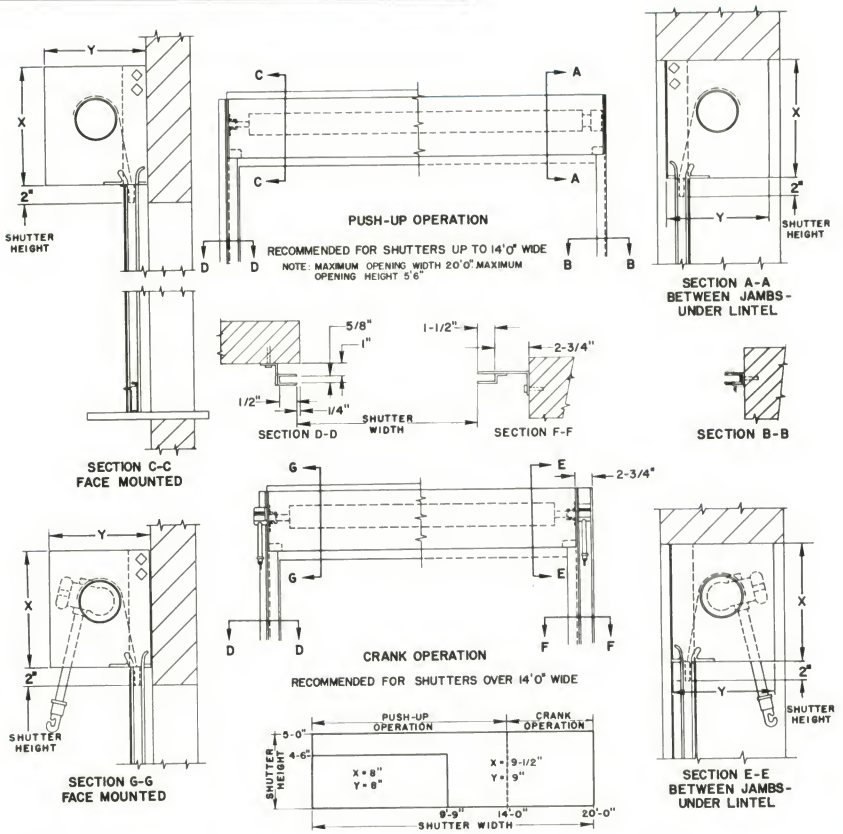


Steel channel guide provides sufficient groove depth to retain curtain even under excessive deflection. Left shows between-jamb mounting; right shows face-of-wall mounting.

EXTRUDED ALUMINUM



FORMED METAL



suggested specifications, (extruded aluminum)

Rolling Counter Shutters as shown, to be as manufactured by The Kinnear Manufacturing Company of Columbus, Ohio.

Curtain – Curtain shall be composed of interlocking flat-faced, midget-type slats. Slats to be extruded aluminum 6063 alloy not less than .050″ thick. Alternate slats to be fitted with endlocks to hold curtain in alignment. Safety endlocks shall be installed for extra protection on all curtains over 8′0″ wide. Bottom of curtain to be finished with an extruded bottom bar fitted with a continuous vinyl astragal to seal against, and protect, counter top.

Locking Device – Curtain shall be locked at each end of bottom bar by concealed slide bolts which shall engage slots in each guide. Slide bolt to be operated by handle located on bottom bar (Cylinder lock which will prevent operation of slide bolt can be provided.)

Barrel and Counterbalance – Curtain to be coiled around a steel pipe fitted, when required, with involute shaped rings for ease of operation. Rings to be faced with suitable material to prevent curtain abrasion. Barrel to be of sufficient thickness and diameter to prevent deflection exceeding .03 inches per foot. Barrel to be supported by steel plate brackets and so designed that it can be removed without disturbing supporting brackets. Helical, oil-tempered springs shall be installed inside the steel pipe, which shall rotate on self-lubricating bearings. Spring tension shall be adjusted in the field by means of an adjusting wheel, concealed inside the aluminum coil housing.

Guides – Shall be formed from extruded aluminum shapes of 6063 alloy and shall extend above lintel so as to furnish support for brackets. Guides to contain retaining groove to engage safety endlocks and prevent curtain leaving guides. Continuous strips of heavy nap stripping shall be locked into guides to give rattle-free operation and to provide dust-seal around curtain.

Operation – Shutters up to 14′0″ wide shall be operated by means of handles mounted on bottom bar. Shutters over 14′0″ wide shall be operated by removable hand crank with crank box mounted on end of spring barrel.

Finish – Curtain, bottom bar, guides and hood to be mill finished. (If satin finish is desired, at extra cost, these parts may be given a 30-minute anodizing, after all fabrication is completed.) All other parts to be given a shop coat of aluminum paint.

suggested specifications, (roll formed)

Rolling Counter Shutter as shown, to be as manufactured by the Kinnear Manufacturing Company of Columbus, Ohio.

Curtain – Curtain shall be composed of a flat slat rolled of 24 ga. steel designed to interlock for smooth, coiling operation and to be approximately 1½″ wide when assembled in the curtain. Bottom of curtain to be finished with suitable angle fitted with lift handle, and a vinyl plastic bottom strip to prevent abrasion on the counter. Alternate slats to be fitted with endlocks to hold curtain in alignment.

Locking Device – Curtain shall be locked at each end of bottom bar by an integral slide bolt which shall engage slots in each guide.

Barrel and Counterbalance – Curtain shall be coiled around a steel pipe of suitable thickness and diameter to prevent deflection exceeding .03 inches per foot. Barrel to be supported by steel plate brackets and shall be so designed that it can be dismounted without disturbing supporting brackets. Helical, oil-tempered springs shall be installed inside the steel pipe, mounted on a shaft, rotating on self-lubricating bearings. The spring tension shall be adjusted in the field by means of an adjustment wheel concealed inside of the sheet metal coil-housing.

Guides – Shall be fabricated of steel angles and shall extend above lintel so as to furnish support for brackets. Guides shall provide sufficient depth of groove to retain curtain in guide under a load of 15 lbs. per square foot.

Operation – Shutters up to 14′0″ wide shall be operated by means of handles mounted on the bottom bar. Shutters over 14′0″ wide shall be operated by removable hand crank with crank box mounted on end of spring barrel.

Finish – Curtain and hood shall be galvanized and given a phosphate treatment for paint adhesion and a shop coat of paint. Bottom bar, guides, and all other parts (except shaft and bearings) to be given a shop coat of paint.

"Packaged" rolling pass windows

Kinnear now offers rolling counter shutter or "Packaged Pass Windows" featuring:

- Stainless Steel frame and sill or optional steel frame and stainless steel sill only.
- Delivered completely assembled ready to anchor in place.
- Shutter made of Kinnear new midget extruded aluminum flat slats or roll-formed steel, aluminum or other metals.
- Manual push-up operation similar to other available custom designed Kinnear counter shutters.
- Kinnear Packaged Shutter units save time and money for owners, architects and contractors, available in sizes up to 10′-0″ wide and 4′-6″ high for any wall thickness. (Contact Kinnear for details for packaged units for special applications.)

suggested specifications

The rolling curtain slats to be .050″ thick extruded aluminum #6063 alloy complete with endlocks. Provide extruded bottom bar with lift handle, a slide key-lock at either jamb and continuous vinyl astragal to seal against counter sill.

Mount barrel assembly containing oil-tempered helical counterbalance spring on self-lubricating bearings at head of stainless steel frame. Conceal assembly with stainless steel closure.

Stainless steel frame of 16 gauge jambs and head and 14 gauge sill shall be designed to specified wall thickness as indicated on the architectural drawings.

Structural angle lintels in masonry openings to be furnished and installed by others.

Aluminum slats to be anodized.

STEEL ROLLING GRILLES

Kinnear Steel Rolling Grilles assure effective protection against burglars, marauders, and trespassers of every type, and are also widely used for closing off corridors and stairways in public buildings, when it is desirable to keep unauthorized persons from entering restricted areas.

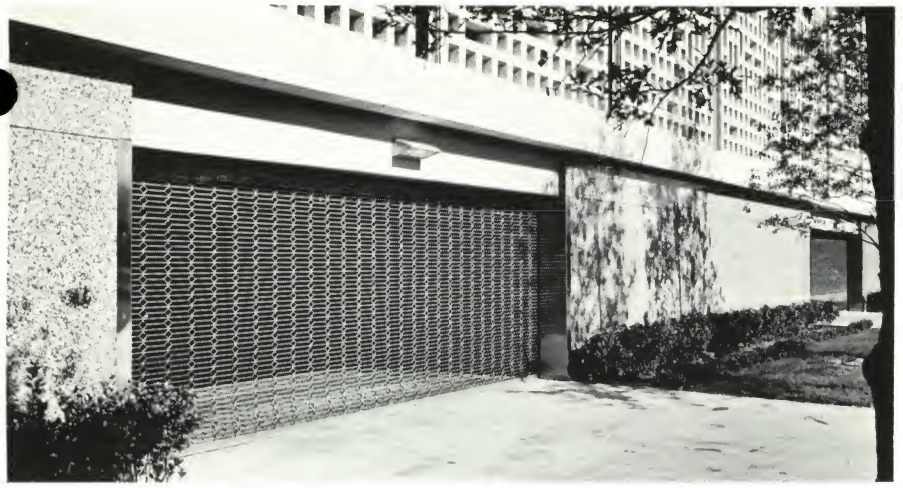
Operating on the same principle as Kinnear Steel Rolling Service Doors (fully described on pages 6 through 19), Kinnear Steel Rolling Grilles are permanently installed. They are remarkably strong when closed and locked, and yet, when they are not needed, they can be easily raised to disappear from sight completely out of the way.

Because of the type of operation and protection provided, without sacrificing light, vision or ventilation, Kinnear Steel Rolling Grilles have wide application for interior and exterior use on concessions, store entrances and windows, vaults, stairways, corridors, courtyards, loading platforms and other openings in monumental, industrial and commercial buildings.

Note sturdy construction of this Kinnear Steel Rolling Grille. Also the revolving type cylinder lock that permits locking from both sides. (On manually push-up type doors only.)

features and advantages

- **attractively designed,** the Kinnear Steel Rolling Grille will harmonize with any style of architecture. It is ruggedly built throughout, of the best materials practicable.
- **long years** of service is assured with a low maintenance cost. Every part is designed to give maximum wear.
- **strong** – The grille proper is extremely strong and artistically designed of 5/16 in. round steel bars spaced close enough to prevent the admittance of either a man's hand or large missiles.
- **built** of round steel bars and pressed steel links, galvanized by the hot dip method, giving a pure zinc coating of not less than .65 oz. per sq. ft. of surface, in accordance with ASTM Standards.
- **lock** – Equipped with a lock that engages in the guides for use when the grille is closed. The lock is of a unique cylinder type (see illustration at left), arranged for locking from both sides.
- **guides** – The grille coils on a heavy pipe or barrel above the lintel, and is locked in and travels in heavy steel guides mounted on the side of the opening.



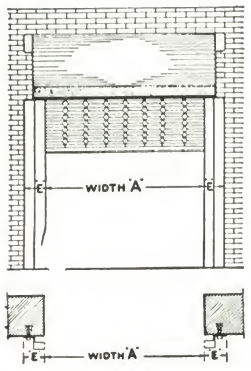
Note: Kinnear Rolling Grilles are frequently installed in conjunction with Kinnear Steel Rolling Doors in the same opening. This provides a closed barricade in cold weather and a ventilating barricade in warm weather. An ideal arrangement.

methods of operation

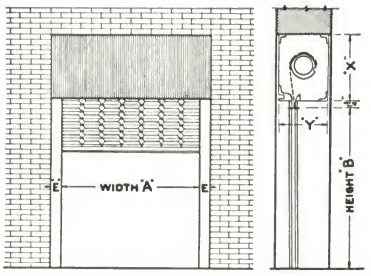
Methods of operation for the Rolling Grilles are also similar to those provided for Kinnear Steel Rolling Service Doors. They can be arranged for manual, mechanical (by chain hoist or crankshaft), or electrical operation. For further details, see pages 6 to 20.

installation details

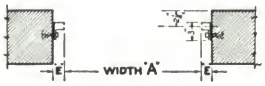
face of wall



between jambs

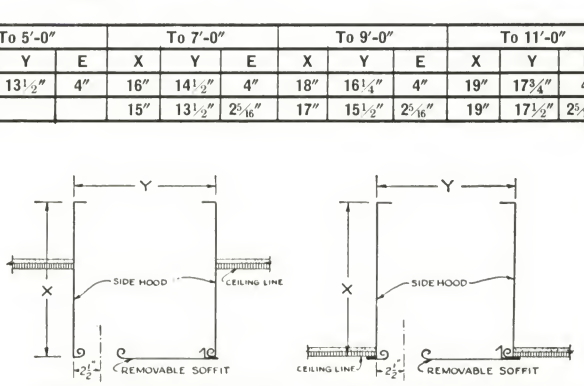


Hand lift type not recommended for sizes exceeding 120 square feet in area. When in need of larger sizes write Kinnear for clearances and details.



HEIGHT "B"	To 5'-0"			To 7'-0"			To 9'-0"			To 11'-0"		
CODE	X	Y	E	X	Y	E	X	Y	E	X	Y	E
FACE OF WALL	15"	13½"	4"	16"	14½"	4"	18"	16¼"	4"	19"	17¾"	4"
BETWEEN JAMBS				15"	13½"	2⅝"	17"	15½"	2⅝"	19"	17½"	2⅝"

typical rolling grill hoods



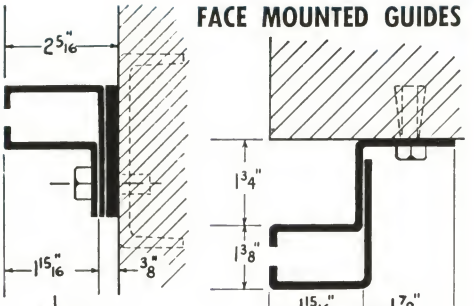
BETWEEN JAMBS - COIL BELOW CEILING

BETWEEN JAMBS - COIL ABOVE CEILING

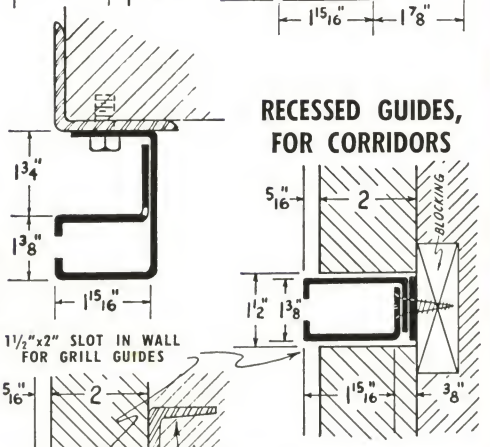
*Inclusive.

Note: Dimensions are for general reference only, and not for construction purposes.

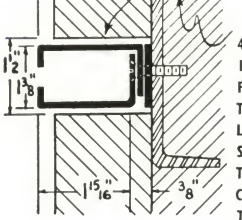
FACE MOUNTED GUIDES



RECESSED GUIDES, FOR CORRIDORS



1½"x2" SLOT IN WALL FOR GRILL GUIDES



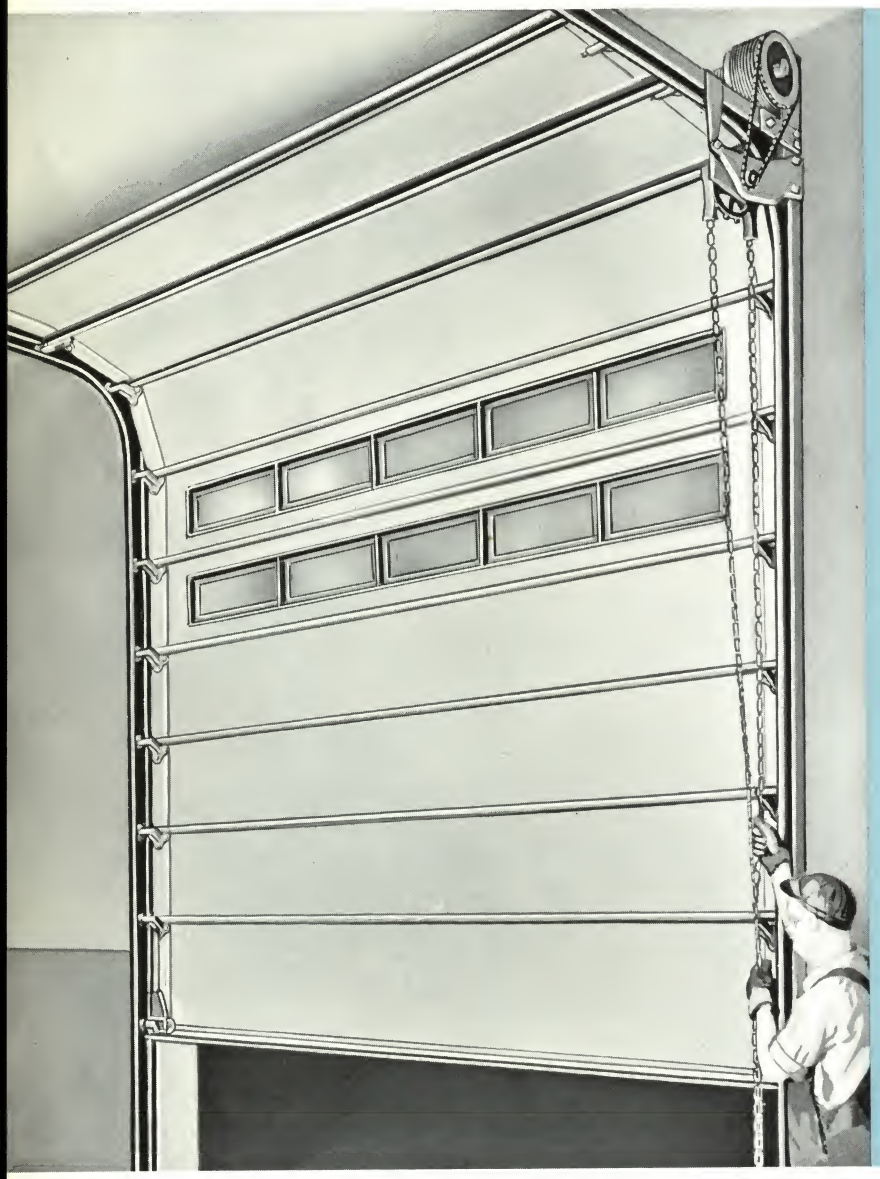
4" MIN. CHANNEL FOR SUPPORTING GUIDES & BKTS. TO EXTEND FROM FLOOR TO SLAB, OR STRUCTURAL STEEL MEMBERS ABOVE LINTEL. (TO BE FURNISHED & INSTALLED BY MISC. IRON CONTRACTOR.) BRACKET CONNECTIONS CAN BE AT TOP, BACK OR THROUGH THE BRACKET WEB.

suggested specifications *(short form)*

Grille to be of the Kinnear Rolling Type, coiling in 24 U.S. gauge galvanized steel hood, on heavy steel barrel journalled in cast iron brackets and traveling in guides mounted at the sides of the opening. Barrel to encase steel, helical oil-tempered counterbalance spring with necessary factor of safety. Grille to be composed of horizontal 5/16" round steel galvanized bars, spaced not to exceed 1⅝" apart, joined by oval shaped pressed galvanized steel links at intervals of approximately 8¼" (omit "galvanized" on Grille sizes exceeding 29'6" in width). Bars and links to be galvanized by the hot dip process, with not less than .65 oz. of zinc per sq. ft. of surface in accordance with ASTM Standards. End links to be engaged in guides fabricated of heavy steel members, in manner to prevent Grille from leaving guides under excessive pressure.

KINNEAR ROLLING DOORS — STEEL ROL-TOP DOORS

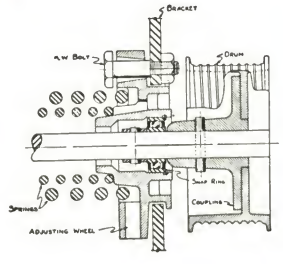
steel sections with 1.75 oz. zinc coating plus KINNEAR paint bond



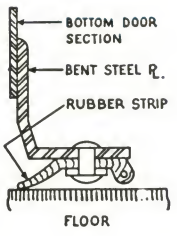
Steel ROL-TOP Doors are available in various sizes to suit old or new installations. Any desired number of sash sections may be specified. Single shaft torsion spring counterbalance insures uniform pull on both sides of door to insure extra operating safety.

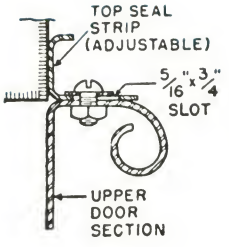
- harmonizes with buildings of either modern or traditional design.
- durability combined with space-economy and fast operation of upward action plus provision for glass openings.
- 16 gauge steel given a 1.75 oz. per sq. ft. class coating of pure zinc by the hot galvanizing process. (As per ASTM Standards.)
- Kinnear Paint Bond Treatment after galvanizing—a finely crystalline phosphate coating by special process to insure immediate paint adhesion.
- arranged for either manual (hand push-up or chain and reduction gearing) or motor operation.
- built to various sizes to suit old or new buildings—with or without any desired number of sash sections.
- available with modifications for specialized uses or building conditions.

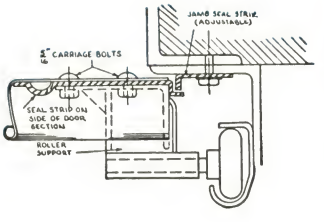
construction features



Ball type shaft bearing has been incorporated to reduce friction and wear to a minimum.







sealing method—To prevent intrusions of wind, weather and water, the jambs and head of door have an adjustable seal-strip; the bottom has a rubber astragal.

specifications

scope – All steel overhead type doors shown on plans shall be Kinnear ROL-TOP or equal.

doors – This door shall be a standard product of a manufacturer regularly engaged in the production of steel overhead type doors.

door sections – Sections shall be approximately 18″ wide, rolled from 16 gauge galvanized and bonderized steel, the edges of the steel sections to be rolled to form a continuous interlocking hinge. Galvanized coating of zinc shall be 1.75 oz. per square foot of flat metal per ASTM standards. Glazed sections to be provided as indicated on plans, type of glass as required.
Doors shall be designed to withstand a wind pressure of 20 pounds per square foot of door area.

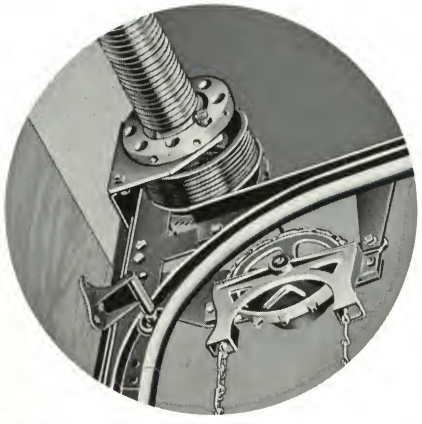
tracks – All tracks to be formed of galvanized steel and mounted on continuous angles designed for bolting to building jambs. Doors of 110 square feet or under may use 2″ track; doors over 110 square feet shall use 3″ track.

counterbalance – All doors shall be counterbalanced by means of oil tempered torsional springs mounted on a continuous steel shaft. Springs to be adjustable for proper operation.

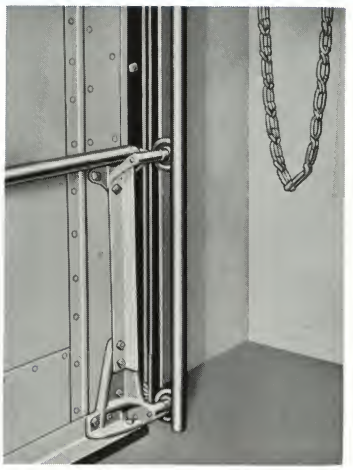
hardware – Ball bearing rollers to be carried on heavy duty malleable iron supports.
Push-up doors to have cremone type cylinder lock.
Bottom of door to be provided with rubber weather seal, top and sides of door to be provided with adjustable metal weather seal.

operation – Doors to be push-up, chain hoist or motor operated as the size and/or type of operator requires.

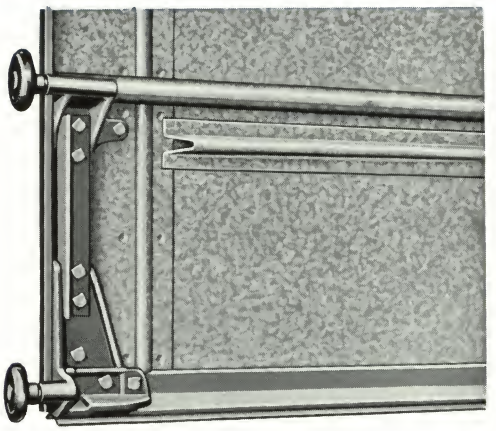
work will not include – (a) Electrical wiring, conduit or fuses, (b) Structural steel sills and jambs, (c) Glass and glazing, (d) Painting.



Chain hoist operation
The enlarged illustration "A" shows the chain hoist operator incorporated on door shown on page 30—an operating mechanism Kinnear experience has found most satisfactory . . . simple, durable construction that insures easy operation and trouble-free service. Recommended on all doors over 10 ft. high or 100 sq. ft. in area.



Rugged malleable hardware is used for roller supports bolted securely to the sections.



Sections, are approximately 18″ wide, rolled from 16 gauge galvanized steel, with rolled, reinforcing edges that form a continuous interlocking hinge. The section is designed to withstand 20 lb. per sq. ft. wind pressure and is given a coating of 1.75 oz. of zinc per sq. ft. of flat metal (per ASTM Standards) by the hot galvanizing process.

KINNEAR ROLLING DOORS

engineering service

More than a half century ago The Kinnear Manufacturing Company was founded for the sole purpose of manufacturing upward opening doors and equipment of superior value. Today Kinnear is recognized as the pioneer in this field—and the originator of the interlocking slat type rolling door—with an unequalled accumulation of experience backed up by integrity.

Constant development by skilled engineers has brought improved designs of doors, slats, operators and accessories. Research has found better materials of less weight and greater strength, durability and resistance to the elements.

The two plants of Kinnear and its wholly-owned subsidiary contain the most up-to-date manufacturing facilities for fabricating, installing and servicing all types of doors. In conjunction with a nationwide organization of sales engineers, they afford buyers from coast to coast the type of prompt and experienced service that has made the name "Kinnear" synonymous with "Superior Doors" the world over.

BRANCH OFFICES

			PHONE
ARIZONA			
Phoenix	Nelson-Holland Builders Hardware Co.	1205 East Camelback Road	AM 6-8411
Tucson	Chapman Dyer Steel Mfg. Co.	820 South Euclid Avenue	MA 3-9449
CALIFORNIA			
Arcata	Overhead Door Company of Eureka-Arcata	1685 Sutter Road	TE 9-1039
Bakersfield	Griffin Steel & Supply Co.	625 Williams Street	FA 5-1211
Fresno	Ed C. van Maarth Co.	334 Van Ness	AM 4-9745
Los Angeles	Kenneth C. Gaines	1121 South Hill Street	RI 9-1451
Monterey	Leppert Low Iron Works	731 Del Monte Avenue	FR 5-3681
Red Bluff	Overhead Door Co.	P.O. Box 23 (Los Molinas)	
Sacramento	Valley Overhead Door Co.	3927 Wayside Lane (Carmichael)	IV 7-0205
Salinas	System Steel Builders	1161 Terven Avenue	HA 2-6702
San Diego	Jerry Dean Building Specialties	3933 Gaines Street	CY 5-4152
San Jose	Harold Hellwig	150 South Montgomery Street	CY 5-4926
Stockton	S & O Steel Erection	Route 2—Box 490	GR 7-3028
COLORADO			
Denver	The George P. Heinz Co.	1645 Ivanhoe	FL 5-1994
HAWAII			
Honolulu	Honolulu Iron Works Co.	Queen and Nuannu	5-0961
IDAHO			
Idaho Falls	Karl T. Homer Distributing Co.	North Yellowstone Highway	JA 2-3373
MONTANA			
Billings	Montana Steel & Supply Co. Inc.	714 Six Avenue South	AL 9-3639
Great Falls	Montana Steel & Supply Co. Inc.	1107 Central Avenue West	GL 2-2011
NEVADA			
Las Vegas	Nevada Building Specialties Inc.	1307 South A Street	DU 2-9215
Reno	Reno Iron Works	290 Keystone Avenue	FA 3-1043
NEW MEXICO			
Albuquerque	Builders' Specialty Service Inc.	2224 San Mateo N.E.	
Santa Fe	Builders' Specialty Service Inc.	16 Radio Plaza	YU 2-2555
OREGON			
Portland	Mercer Steel Company Inc.	2636 N.W. 26th Avenue	CA 6-2511
TEXAS			
El Paso	Architectural Products Co. Inc.	1224 E. Missouri Avenue	KE 3-9547
UTAH			
Salt Lake City	Williams Equipment & Controls Co.	204 Dooly Building	EM 4-6421
WASHINGTON			
Seattle	Fryer Knowles Inc.	6206 Roosevelt Way	LA 3-7700
Spokane	Fryer Ford Company	621 Peyton Building	MA 4-4453
WYOMING			
Cheyenne	Powers Builders' Supply	1003 East Lincoln Way	2-5521
CANADA			
Vancouver—British Columbia	O'Neil Tile & Terrazzo Ltd.	1043 West Pender Street	MU 3-4431
FOREIGN			
PHILIPPINE ISLANDS Manila	Lilestone & Co. Inc.	107 13th Street Port Area	3-29-53

THE KINNEAR MANUFACTURING COMPANY

FACTORIES

San Francisco 24, California, 1742 Yosemite Avenue

Columbus 16, Ohio, 820-870 Fields Avenue

Bulletin 109

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engineering service

More than a half century ago The Kinnear Manufacturing Company was founded for the sole purpose of manufacturing upward opening doors and equipment of superior value. Today Kinnear is recognized as the pioneer in this field—and the originator of the interlocking slat type rolling door—with an unequalled accumulation of experience backed up by integrity.

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Monterey	FR 5-3681
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Sacrament	IV 7-0205
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San Diego	CY 5-4152
San Jose	CY 5-4926
Stockton	GR 7-3028
COLORAI	
Denver	FL 5-1994
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Honolulu	5-0961
IDAHO	
Idaho Falls	JA 2-3373
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Billings	AL 9-3639
Great Falls	GL 2-2011
NEVADA	
Las Vegas	DU 2-9215
Reno	FA 3-1043
NEW ME	
Albuquerqu	YU 2-2555
Santa Fe	
OREGON	
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TEXAS	
El Paso	KE 3-9547
UTAH	
Salt Lake C	EM 4-6421
WASHING	
Seattle	LA 3-7700
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